

EUB Provincial Surveillance and Compliance Summary 2006

June 2007



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Executive Summary

Industry compliance with EUB regulations is the foundation of protecting public safety and the environment, ensuring resource conservation, and building stakeholder confidence in the regulatory process. *ST99-2007: Field Surveillance and Compliance Summary 2006* reports the EUB's activities ensuring industry compliance and industry performance.

To ensure the orderly development of Alberta's energy resources, when the EUB identifies a noncompliance event, it initiates EUB enforcement actions described in *Directive 019: EUB Compliance Assurance—Enforcement*. Enforcement actions are determined by the severity of the noncompliance event and are escalated, when necessary, for subsequent noncompliance or failure to comply with the corrective order.

Energy companies operate almost 227 000 nonabandoned wells, 20 690 oil batteries and associated satellites, 817 gas plants, 12 243 gas batteries, 4726 compressor stations, and a pipeline network of more than 392 000 kilometres (km). In 2006, the EUB inspected a portion of this vast energy infrastructure and audited select information associated with this activity that was submitted to the EUB to ensure that projects are constructed properly and operated safely and that all relevant regulations are met.

Working from nine EUB Field Centres throughout Alberta, field staff inspect construction, operation, and abandonment operations at oil, gas, and oil sands facilities—including pipelines, compressors, and processing plants. The EUB responds to emergencies and public complaints 24 hours a day to guarantee a consistent approach to enforcement of requirements.

Staff in the head office in Calgary audit the paperwork that comes into the EUB, including applications, the financial viability of companies, reports regarding waste, economic evaluations for flaring and venting of gas, and production measurement and reporting.

In the Facilities Applications Group, the number of initial audits increased 5 per cent to 1633 in 2006 from 1555 in 2005.

The industry's proactive efforts in meeting and exceeding EUB requirements have resulted in overall high compliance rates. In 2006, the EUB carried out almost 5500 enforcement actions, of which a mere 10 were appealed to the EUB's Enforcement Advisor.

The EUB continues to focus on pipeline corrosion, noncompliant licensees, air monitoring activities, reduction of odours, and improving communication with all stakeholders.

Inspections

In 2006 the total number of field inspections, which includes well site inspections, was 14 860. There were 16 782 inspections in 2005. The difference in inspection numbers for 2006 was due to several factors. They include an increased number of well control incidents and increased time spent on the investigation of these events. In addition, six staff were added to Community and Aboriginal Relations. Significant resources were required to ensure that these staff were properly trained and able to proactively engage

stakeholders and address issues. Staff training was also required on the new enforcement process.

The oil and gas industry continued to maintain a high compliance record. High Risk noncompliance was found in 2.8 per cent of inspections in 2006, compared to 1.8 per cent in 2005. High Risk noncompliance occurs when a licensee's failure to address a contravention of a regulation has the potential to cause a significant impact on the public, environment, conservation, or stakeholder confidence.

Enforcement

Companies that fail to meet requirements or follow EUB direction are subject to escalating enforcement actions, which always include deadlines to correct problems and may be reinforced by penalties, such as temporary or long-term suspension of operations.

The EUB suspended 177 facilities in 2006, including 39 drilling rigs, 100 pipelines, and 17 oil production facilities. The EUB suspended 91 facilities in 2005.

In the past five years, the EUB has suspended a total of 624 facilities.

Drilling and Servicing

Both the EUB and industry work hard to ensure that drilling and servicing operations are carried out in a safe manner and meet the strictest standards. 2006 saw an increase in blowouts from 2005. Since isolated increases can occur, EUB staff are carefully monitoring the situation to ascertain if this increase is part of a larger trend and if there are any gaps in industry performance or regulations that need to be addressed.

There were 124 kicks recorded in 2006, for a kick occurrence rate of about 6.4 kicks per 1000 wells drilled. This rate has remained relatively constant for the past five years.

During 2006, 17 blowouts were recorded in the drilling of 19 438 wells. There was no significant impact on the public and minimal impact on the environment as a result of these occurrences.

Six blowouts were recorded during servicing operations in 2006, with two occurring on sour wells and the other four on sweet wells. Three of the six blowouts were attributed to equipment failure and three to operator error. All of the blowouts were of short duration (less than 1 day), and environmental impact was minimal.

In 2006, 22 blowouts occurred in the "other" category, of which 11 were on sweet wells and 10 were on sour wells. Four of these blowouts were attributed to third-party damage, and 14 resulted from equipment failure. Two blowouts were caused by operator error, and one was the result of inadequate well design. All blowouts were of short duration and had minimal impact on the public or the environment.

On February 6, 2006, the EUB issued *Directive 033: Well Servicing and Completions Operations—Interim Requirements Regarding the Potential for Explosive Mixtures and Ignition in Wells*. This directive requires operators undertaking completion or well servicing operations to document and implement practices to safely manage the potential for explosive mixtures and ignition in wellbores that result in a blowout. Each year since 2000 there has been at least one blowout that has been the result of a wellbore explosion; since the introduction of *Directive 033* no incidents of this nature have been recorded.

Drilling operations were suspended at all rigs if inspections revealed High Risk noncompliance. The total shutdown time was about 109 hours, compared to 120 hours in 2005.

In 2007, the EUB will focus on conducting operator awareness sessions to increase industry's understanding of requirements and improve compliance levels.

Pipelines

The pipeline failure rate decreased to 2.2 per 1000 km of pipeline in 2006 from 2.3 per 1000 km in 2005. The majority of failures occurred in smaller-diameter gathering lines, primarily 60.3 millimetre (mm), 88.9 mm, and 114.3 mm systems.

EUB field staff conducted 460 pipeline construction and test inspections in 2006, of which 9 found High Risk noncompliances. All deficiencies were brought into compliance. This compares to 446 pipeline construction and test inspections conducted in 2005, when 16 High Risk noncompliances were found.

Although corrosion continued to be the main cause of pipeline failures in 2006, there were far fewer internal corrosion failures compared to 2005: 343 compared to 420. External corrosion decreased slightly to 110 in 2006 from 116 in 2005, with efforts to reduce failure incidents in older pipeline coating systems continuing to present challenges.

If a failure occurs, the licensee must confirm the integrity of the entire pipeline segment, perform an engineering assessment on the pipeline system that it operates in, and outline measures to prevent further occurrences. When the cause of the failure is not readily apparent, the licensee must perform a failure analysis.

In 2007, staff will continue to focus on pipeline failures, construction and pressure testing, operations inspections, and contact damage. More attention will also be given to fibre glass and composite pipelines to ensure that requirements are met.

Sulphur Recovery

Sulphur emissions have declined by 28 per cent since 2000, from 78 000 tonnes then to 56 000 tonnes in 2006. Sulphur recovery efficiencies at gas plants recovering saleable sulphur is at 98.9 per cent.

Spills

Spills increased in 2006 to 1516 from 1429 the previous year. Of the spills recorded in 2006:

- 84 (5.5 per cent) were priority 1 – those that pose the most serious environmental and public impact.
- 291 (19.2 per cent) were priority 2 – those where a significant volume has been released or the impact on the environment is a concern.
- 1141 (75.3 per cent) were priority 3 – low-volume spills on site or short-duration releases of sweet gas.

The percentages of spills in each category remained stable compared to 2005.

Equipment failure and pipeline corrosion proved to be the primary causes of liquid spills in 2006, which is consistent with past years.

The EUB inspected 740 spill sites, which found 587 operations in compliance, 68 Low Risk noncompliant, and 85 High Risk noncompliant.

The spill volumes for hydrocarbon and produced water in 2006 were 9732 cubic metres (m^3) and 27 287 m^3 respectively. These volumes are higher than in 2005, with the increase the result of fewer than 10 pipeline failures where significant volumes were released. All of these releases were contained. The area affected and the environmental impact were kept to a minimum in all but one spill.

One pipeline leak resulted in about 1200 cubic metres (m^3) of sweet light crude oil being released in a remote area south of Slave Lake. The environmental impact was contained, and an EUB investigation concluded that public safety was not at risk during the incident. The EUB has directed the pipeline operator to take a number of measures to increase public safety and environmental protection.

In 2007, field staff will continue to work with industry to improve operating practices through increased staff training, equipment monitoring, and reviewing of corrosion mitigation programs.

Air Monitoring

The EUB has two mobile ambient air monitoring units (AMUs) equipped with analyzers capable of reading and recording hydrogen sulphide and sulphur dioxide emissions.

The EUB conducted 338 air monitoring inspections in 2006, resulting in a 97.6 per cent compliance rate. Fewer inspections were carried out in 2006 than in past years, because both AMUs were being replaced, with only one unit available at a time to respond to emergencies while the other was being assembled.

Waste Management

In 2006, field staff conducted 68 waste management inspections compared to 66 in 2005. Of the 2006 inspections, 42 operations were found to be in compliance, 25 had Low Risk noncompliances, and one had High Risk noncompliances.

Responding to Public Concerns

Public complaints decreased by about 5 per cent in 2006. As some complaints highlighted more than one issue, the EUB identified 985 issues associated with 880 complaints in 2006, compared to 1049 issues associated with 924 complaints in 2005.

Field staff respond to all complaints related to upstream oil and gas activities, with the goal of ensuring prompt, effective, and lasting resolution to the problems identified.

In addition, the EUB conducts a random complaint call-back survey each month to ensure that appropriate complaint response procedures are being used and any questions or concerns are addressed. Results of the 2006 survey indicate that

- 89.7 per cent of the individuals surveyed said their concerns were satisfactorily resolved, the same as in 2005;

- 69.7 per cent of the individuals surveyed were satisfied with the licensee's response, compared to 56 per cent in 2005; and
- 96.4 per cent of the individuals surveyed were satisfied with the response from the EUB, compared to 96.3 per cent in 2005.

Public Involvement

Staff participated in numerous events in 2006, including 128 synergy group meetings. Smaller scale meetings discussing EUB roles and responsibilities were conducted with 125 key stakeholders in the province of Alberta, including 49 aboriginal communities. In addition, the EUB conducted 150 presentations to the public, industry, and government.

Staff participated in 52 open houses in 2006 to listen to concerns, answer questions, address issues, and improve the public's understanding related to proposed developments. Open houses are another way to improve communication and relationships among industry, the public, and government.

1 Introduction



This report details industry's compliance with EUB requirements and the enforcement actions taken in cases of noncompliance. The sections relating to field surveillance and inspections describe the wide range of activities carried out by EUB field staff and provide readers with information and statistics related to those activities. The information gathered is analyzed in order to allocate resources more efficiently, predict trends, and determine future actions to improve industry's understanding of and compliance with EUB requirements.

EUB requirements ensure orderly and responsible energy development, while protecting public safety, minimizing environmental impacts, improving conservation, and ensuring equity. Compliance with these requirements is confirmed by the EUB through surveillance activities, such as inspections and audits. Proactive compliance means that the duty holder (e.g., licensee, operator, company, applicant, approval holder, or permit holder) is in compliance with EUB requirements through its own initiative.

In June 2005, the Compliance Assurance Initiative (CAI) was developed to review the enforcement process, procedures, and rules. The goal of CAI was to create one compliance policy applicable to all EUB groups and processes. On January 1, 2006, *Directive 019: Compliance Assurance—Enforcement* came into effect, replacing *Informational Letter (IL) 99-04: EUB Enforcement Process, Generic Enforcement Ladder and Field Surveillance Enforcement Ladder*. In addition, it superseded the enforcement ladders of all other EUB directives and guides. CAI continues to improve the enforcement process. The role of CAI is to coordinate risk assessment application to all EUB groups; develop reporting specifications and processes for all EUB groups to use; and develop longer term plans for training, processes, and systems necessary for full consideration of recommendations.

The enforcement ladders in *IL 99-04* were replaced with a simplified risk-based two-tier compliance assurance policy with increased emphasis on prevention, while retaining manual escalation where necessary. Requirements that had not been risk assessed by January 1, 2006, were classified as either Low or High Risk. Requirements that were identified prior to January 1, 2006, as Minor are now classified as Low Risk and requirements that were identified as Major or Serious are now classified as High Risk. The same process was used for the purpose of comparing compliance results for 2006 to previous years. All noncompliance items contained in the main body of this report have been converted to either Low Risk or High Risk.

Directive 019 updates the EUB's enforcement process to improve process clarity, focus, and efficiency and is still built on the principles that

- public safety and environmental protection will not be compromised;
- enforcement will be timely, effective, and appropriate; and
- the licensee is responsible for compliance with EUB requirements and processes.

Directive 019 clearly explains what licensees must do when a noncompliance is identified, the enforcement process and consequences for any noncompliances, the appeal process, the voluntary self-disclosure policy, and the availability of compliance information.

Additional information regarding *Directive 019* is on the EUB Web site www.eub.ca.

Staff now use the EUB's Risk Assessment Matrix to predetermine the level of risk inherent in noncompliance of each EUB requirement. Each requirement has an associated Low Risk or High Risk rating based on the following qualitative measures of consequences:

- health and safety,
- environmental impact,
- conservation, and
- stakeholder confidence in the regulatory process.

Requirements regarding equity, orderly and efficient development, and data collection are risk assessed using the stakeholder confidence column in the risk matrix.

In this report, the terms "in compliance," "Low Risk," and "High Risk" are used. It is important that the definition of each is understood to properly interpret the statistics. There are numerous requirements in each inspection discipline, and even if one noncompliance item is identified, the inspection result is considered noncompliant. The definitions below include those for Low and High Risk noncompliances from *Directive 019: EUB Compliance Assurance Enforcement Ladder* and apply to these terms throughout this report:

- **Compliance**—A licensee is found in compliance with all regulations/requirements.
- **Low Risk noncompliance**—Using the Risk Assessment Matrix, the assessment of the qualitative measures of consequences is minimal. A contravention of

regulation(s)/requirement(s) is found that does not result in a direct threat to the public and/or the environment and does not adversely affect oil and gas operations.

Examples of Low Risk noncompliances are facility signage missing, and garbage and debris not stored in a reasonable manner at an oil or gas facility.

- **High Risk noncompliance**—Using the Risk Assessment Matrix, the assessment of the qualitative measures of consequences is more significant. A contravention of regulation(s)/requirement(s) is found that the licensee has failed to address and/or that has the potential to cause a significant impact on the public and/or the environment.

Examples of High Risk inspection items are hydrogen sulphide (H₂S) release causing odours off lease at an oil battery and not properly informing stakeholders of a proposed development or application in accordance with *Directive 056: Energy Development Applications and Schedules*.

The EUB continues to classify all of its requirements as Low or High Risk and document them under the appropriate compliance category. For an overview of current EUB categories, contact personnel, and risk assessed noncompliances, go to the EUB Web site www.eub.ca.

The ultimate goal of EUB enforcement is to ensure compliance with the requirements that are written, monitored, and enforced on behalf of Albertans, our stakeholders. Compliance ensures that resource activity within the province is conducted in a manner that protects public safety, minimizes environmental impact, preserves equity, and ensures effective conservation of resources.

A summary of all the audits/inspections and enforcement actions issued for the 2006 calendar year is on the following page.

2006 Compliance Summary

EUB Branch/Group/Section	Compliance Category	Initial Audits/ Inspections	Number of Low Risk Noncompliance	Number of High Risk Noncompliance	Compliance Rate with High Risk noncompliance
Applications Branch					
Facilities Applications Group Audit Section	Facilities Technical	88	3	2	98%
	Participant Involvement	662	4	31	95%
	Pipelines/Pipeline Installations Technical	331	22	3	99.1%
	Wells Technical	552	1	101	82%
Resources Applications Group Enforcement and Surveillance Section	ER Scheme	156	0	16	90%
Compliance, Environment, and Operations Branch					
Corporate Compliance Group Liability Management Section	Noncompliance with LMR	256	65	N/A	75%*
	Orphan Levy	963	156	N/A	84%*
Environmental Group Waste and Storage Section	Drilling Waste	75	29	9	88%
	Oilfield Waste Generator	39	19	8	79%
	Oilfield Waste Receiver	6	1	3	50%
	Material Storage	17	8	0	100%
Operations Group Production Operations Section	Directive 060 Economic Evaluation	17	0	0	100%
	Production	16	0	16	0%
	Sulphur Recovery Guidelines	332	2	7	98%
Well Operations Section	Well Abandonment	10	0	0	100%
Fort McMurray Regional Office					
Oil Sands Section	Mineable Oil Sands	24	0	0	100%
	Operating Criteria	4	0	0	100%
Information and Systems Services Branch					
Information Collection and Dissemination Group Information Collection Section	Annual Log Submissions	14 034	1	N/A	100%*
	Monthly Volumetric Reporting	306 284	722	N/A	99.8%*
	Well Drilling and Completions Reporting	545	60	N/A	89%*
Well Test Data Reporting	Initial Gas and Oil Well Testing	95 941	396	N/A	99.6%*
Public Safety/Field Surveillance Branch					
	Drilling Operations	414	45	41	90%
	Drilling Waste	200	10	17	92%
	Gas Facilities	2 637	778	66	98%
	Oil Facilities	3 621	866	63	98%
	Pipelines	1 236	174	152	88%
	Well Servicing	280	22	7	98%
	Well Site Inspections	6 078	1 162	63	99%
Resources Branch					
Economics Group	Gas Removal Permits	2 444	105	N/A	96%*
Geology and Reserves Group Reserves and Allowables Section	Oil Overproduction	8 988	N/A	58	99.4%
Total**		25 783	N/A	663	97.4%

* Compliance rate with Low Risk noncompliance.

** Only includes initial audits/inspections with High Risk requirements and corresponding compliance rate.

2 Applications Branch

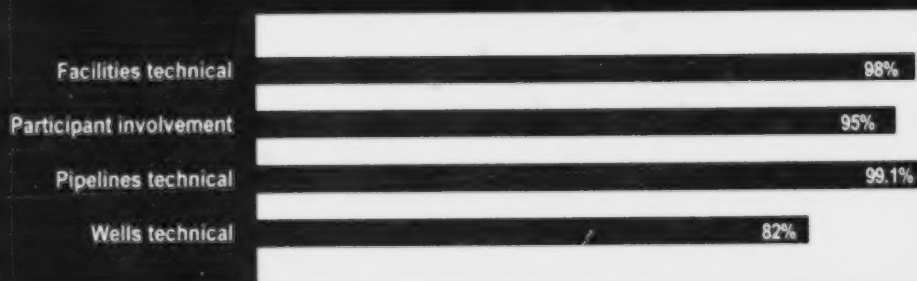


2.1 Facilities Applications Group

2.1.1 Applications Audit Section

The Applications Audit Section is responsible for auditing facility, well, and pipeline licence applications. One of its objectives is to measure industry's compliance with *Directive 056*. The Facilities Applications audit process provides baseline industry compliance levels and identifies areas where companies can continue to improve.

**Figure 1. Proactive compliance regarding *Directive 056*
High Risk in 2006**



Detailed Compliance Data for 2003 – 2006

Table 1. Facilities Technical, 2006

	2006
Initial audits	88
Low Risk	
Low Risk Notice 1	3
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	2
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	98%

Table 2. Facilities Technical Request for Review Statistics, 2003 - 2006

	2003	2004	2005	2006
Enforcement actions	8	10	3	5
Request for reviews received	3	0	1	0
Request for review rate	38%	0%	33%	0%
Request for reviews granted	3	N/A	0	N/A
Request for review denial rate	0%	N/A	100%	N/A

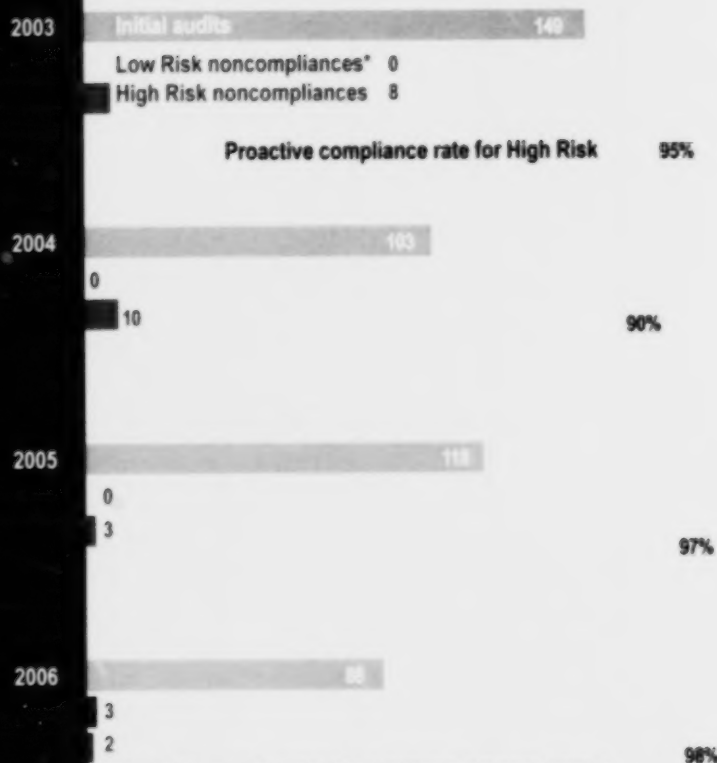
Table 3. Facilities Technical Compliance Results, 2003 - 2006

	2003	2004	2005	2006
Initial audits	149	103	118	88
% satisfactory	95	90	97	95
% unsatisfactory (Low Risk)	0	0	0	3
% unsatisfactory (High Risk)	5	10	3	2

Table 4. Participant Involvement, 2006

	2006
Initial audits	662
Low Risk	
Low Risk Notice 1	4
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	31
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	95%

Figure 2. Facilities technical compliance audit results



* "Low Risk noncompliance" is additional information that is not used in determining proactive compliance rate.

Table 5. Participant Involvement Request for Review Statistics, 2003 - 2006

	2003	2004	2005	2006
Enforcement actions	77	29	27	35
Request for reviews received	7	3	0	2
Request for review rate	9%	10%	0%	6%
Request for reviews granted	2	1	N/A	1
Request for review denial rate	71%	67%	N/A	50%

Table 6. Participant Involvement Compliance Results, 2003 - 2006

	2003	2004	2005	2006
Initial audits	246*	486	715	662
% satisfactory	69	94	96	95
% unsatisfactory (Low Risk)	1	0	0	0.5
% unsatisfactory (High Risk)	30	6	4	4.5

* The number of audits has been changed to reflect post-approval audits only.

Figure 3. Participant involvement audit results

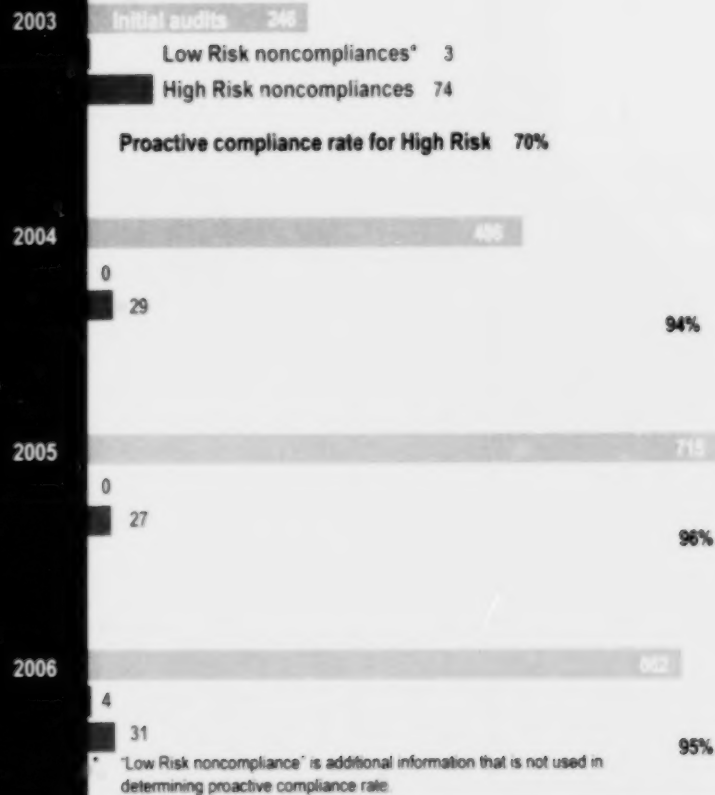


Table 7. Pipelines/Pipeline Installations Technical, 2006

	2006
Initial audits	331
Low Risk	
Low Risk Notice 1	22
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	3
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	99.1%

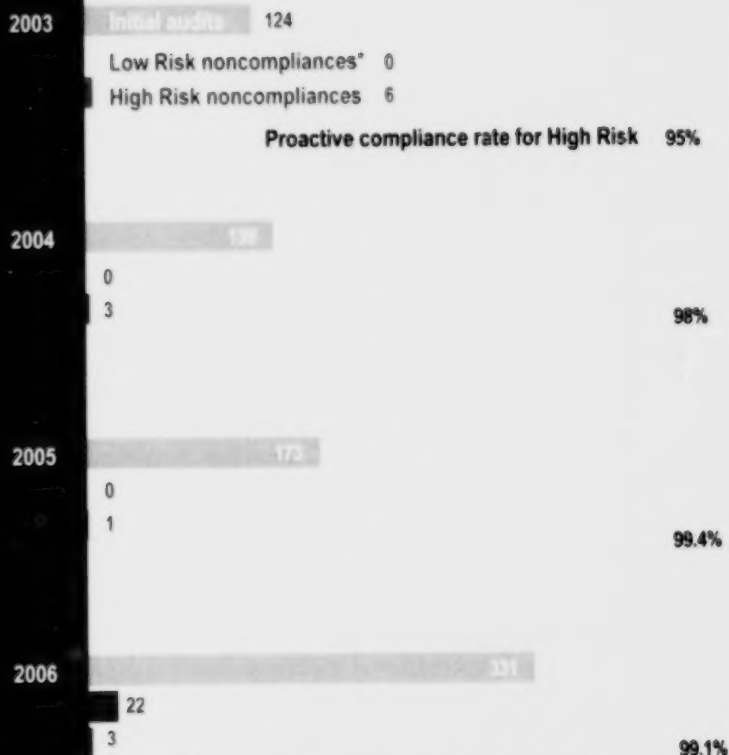
Table 8. Pipelines/Pipeline Installations Technical Request for Review Statistics, 2003 - 2006

	2003	2004	2005	2006
Enforcement actions	6	3	1	25
Request for reviews received	1	0	1	2
Request for review rate	17%	0%	100%	8%
Request for reviews granted	0	N/A	1	1
Request for review denial rate	100%	N/A	0%	50%

Table 9. Pipelines/Pipeline Installations Technical Compliance Results, 2003 - 2006

	2003	2004	2005	2006
Initial audits	124	139	173	331
% satisfactory	95	98	99.4	92
% unsatisfactory (Low Risk)	0	0	0	7
% unsatisfactory (High Risk)	5	2	0.6	1

Figure 4. Pipeline/pipeline installations technical audit results



* "Low Risk noncompliance" is additional information that is not used in determining proactive compliance rate.

Table 10. Wells Technical, 2006

	2006
Initial audits	552
Low Risk	
Low Risk Notice 1	1
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	95
High Risk Action 2	6
High Risk Action 3	
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	82%

Table 11. Wells Technical Request for Review Statistics, 2003 - 2006

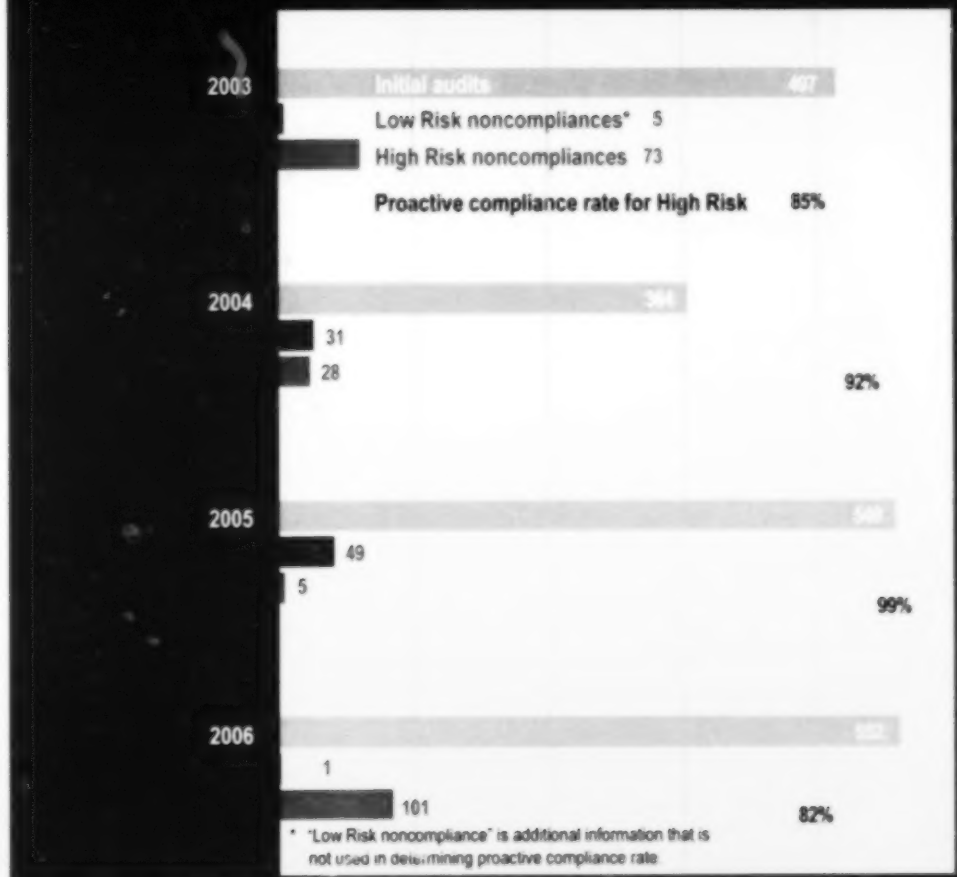
	2003	2004	2005	2006
Enforcement actions	78	59	54	102
Request for reviews received	10	3	1	8
Request for review rate	13%	5%	2%	8%
Request for reviews granted	4	1	1	1
Request for review denial rate	60%	67%	0%	88%

Table 12. Wells Technical Compliance Results, 2003 - 2006

	2003	2004	2005	2006
Initial audits	497	364	549	552
% satisfactory	84	84	90	82
% unsatisfactory (Low Risk)	1	9	9	0
% unsatisfactory (High Risk)	15	7	1	18

- Compliance trends remained similar to those in previous years. There was an increase in the rate of noncompliances due to the implementation of a clarified enforcement process through *Directive 019*. Most noncompliances fell within the Wells Technical and Participant Involvement compliance categories. The majority of Participant Involvement noncompliance events were companies failing to meet public disclosure and consultation requirements. The majority of Wells Technical noncompliance events were companies failing to obtain mineral rights (Crown) and proceeding without the Crown's authorization for wellbore re-entries.
- The number of audits conducted increased by 5 per cent, from 1555 in 2005 to 1633 in 2006, with the total number of audit assessments growing 52 per cent, from 2561 in 2005 to 3889 in 2006. The number of audit assessments includes the number of audits completed, as well as the number of self-disclosures completed. The significant increase in the number of audit assessments completed in 2006 was due to an increase in the number of pipeline self-disclosures. The number of self-disclosures indicates industry's willingness to correct past licensing issues and work towards continued compliance.

Figure 5. Wells technical audit results



- A total of 1633 audits were conducted on *Directive 056* applications. This number includes Random, Judgemental, and Immediate audits. This number also includes
 - 241 preapproval audits as part of reviews under Section 26 of the *Energy Resources Conservation Act*,
 - 59 audits as part of reviews and variances under Section 39 or 40 of the *Energy Resources Conservation Act*, and
 - 116 E Category reviews deemed nonroutine (E600 Gas Processing Plants, E610 Critical Wells, and E620, E621, and E622 Proximity Critical Wells).
- Application audits found 137 High Risk enforcement actions in the following compliance categories:
 - Facilities Technical – 2
 - Participant Involvement – 31
 - Pipelines/Pipeline Installations Technical – 3
 - Wells Technical – 101

- Application audits found 30 Low Risk noncompliances (first notices) in the following compliance categories:
 - Facilities Technical – 3
 - Participant Involvement – 4
 - Pipelines/Pipeline Installations Technical – 22
 - Wells Technical – 1
- 12 requests for reconsideration of enforcement actions were received by Facilities Applications Audit staff:
 - 3 reconsiderations were granted by Facilities Applications Audit staff
 - 9 reconsiderations were denied by Facilities Applications Audit staff
 - 1 appeal was granted by the Enforcement Advisor
- In addition to the above, the Facilities Applications Audit Section captured and processed 111 well, 1875 pipeline, and 270 facility self-disclosures.

2.2 Resources Applications Group

2.2.1 Enforcement and Surveillance Section

In November 2004, the EUB announced changes to the Enhanced Recovery (ER) applications process (*Bulletin 2004-30*) whereby the applications focus shifted from scheme design (applications) to scheme performance (audit).

Detailed Compliance Data for 2006

Table 13. ER Scheme, 2006

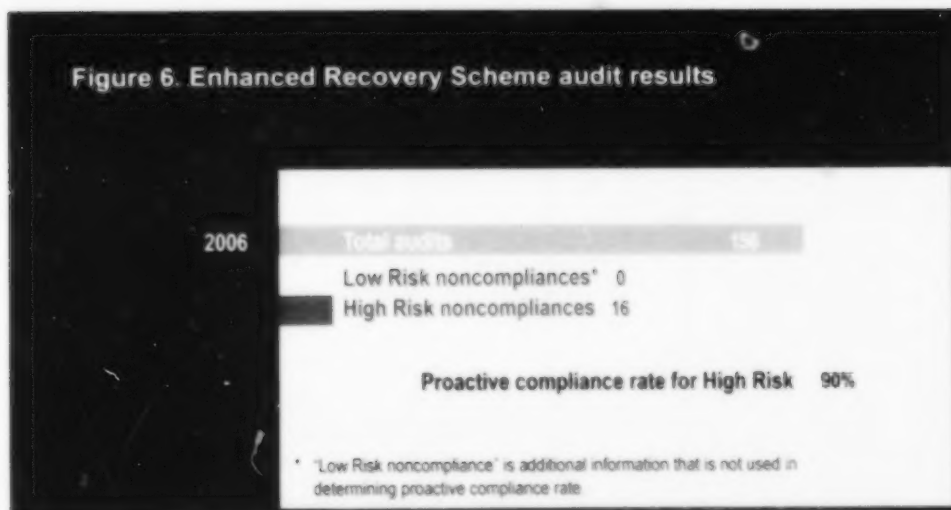
	2006
Initial audits	156
Low Risk	
Low Risk Notice 1	0
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	16
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	90%

Table 14. ER Scheme Request for Review Statistics, 2006

	2006
Enforcement actions	16
Request for reviews received	0
Request for review rate	0%
Request for reviews granted	N/A
Request for review denial rate	N/A

Table 15. ER Scheme Compliance Results, 2006

	2006
Initial audits	156
% satisfactory	90
% unsatisfactory (Low Risk)	0
% unsatisfactory (High Risk)	10



The EUB committed to audit all new and selected scheme amendments about six months after approval issuance to confirm compliance with the specified conditions of approval (see *Directive 065: Resource Applications for Conventional Oil and Gas Reservoirs*, Section 2.1.4.2).

As a result of this new process, the EUB conducted 156 applicable ER scheme approval audits in 2006, resulting in 16 High Risk Action 1 enforcements.

3 Compliance, Environment, and Operations Branch



3.1 Corporate Compliance Group

3.1.1 Liability Management Section

The role of the EUB's Liability Management Section is to develop, implement, and administer appropriate, effective, and efficient liability management programs. These are designed to minimize and, if possible, eliminate the risk of the abandonment and reclamation liabilities of industry sectors regulated by the EUB falling to the people of Alberta.

For the upstream oil and gas industry, this responsibility is accomplished by evaluating the financial viability of licensees monthly and on proposed licence transfers.

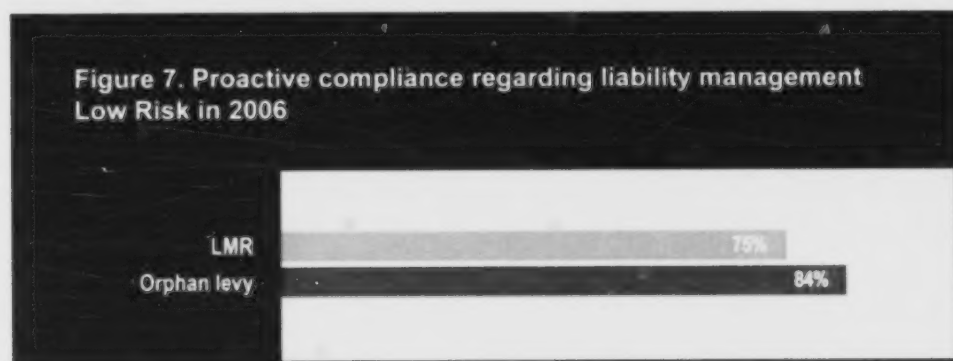
The Liability Management Section also administers the Orphan Levy and the Liability Management Rating (LMR), which represents an amalgamation of the monthly Licensee Liability Rating (LLR) Program and the Large Facility Liability Management Program (LFP).

3.1.1.1 Liability Management Rating

The LMR assessment is a comparison of a licensee's deemed assets in both the LLR Program and the LFP to its deemed liabilities in both programs. The LMR evaluates a licensee's ratio of both deemed assets and deemed liabilities each month and on receipt of a licence transfer application. Currently, the LMR security threshold is 1.0; licensees with a deemed-asset-to-deemed-liability ratio below 1.0 are required to provide the EUB with a deposit equal to the difference.

Prior to the implementation of *Directive 024: Large Facility Liability Management Program* on October 1, 2005, monthly and licence transfer assessments were solely based in the requirements of *Directive 006: Licensee Liability Rating (LLR) Program and*

Licence Transfer Process. As a result of the implementation of the LMR, the numbers in the figure and tables below represent an amalgamation of both LLR and LFP enforcement figures.



Detailed Compliance Data for 2006

Table 16. LMR, 2006

	2006
Initial assessments	11 730
Assessment invoices	256
Low Risk	
Low Risk Notice 1	65
Low Risk Notice 2	24
Low Risk Enforcement	13
Low Risk Enforcement with Orders issued	8
Proactive compliance rate for Low Risk	75%

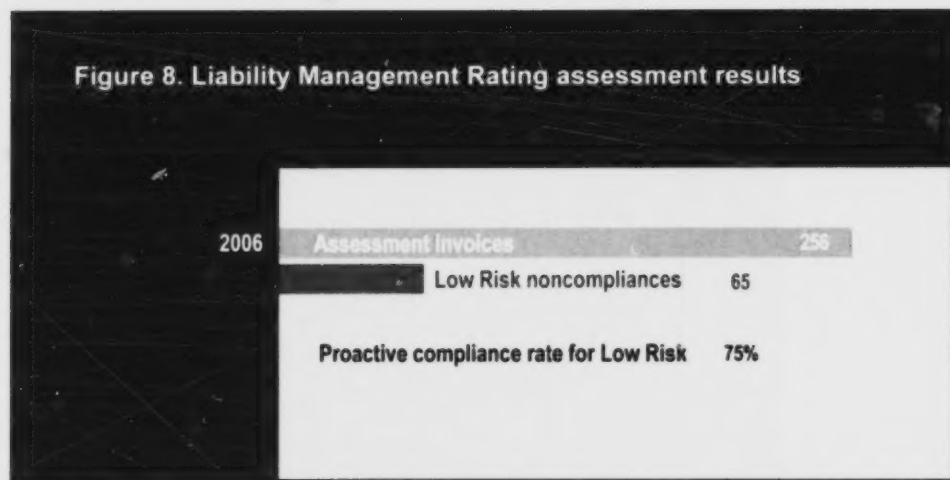
Table 17. LMR Request for Review Statistics, 2006

	2006
Assessment invoices	256
Request for reviews received	21
Request for review rate	8%
Request for reviews granted	21
Request for review denial rate	0%

Table 18. LMR Compliance Results, 2006

	2006
Assessment invoices	256
% satisfactory	75
% unsatisfactory (Low Risk)	25

Figure 8. Liability Management Rating assessment results



- The LLR Program is based on the use of provincial averages, and their use may not accurately reflect the deemed assets or deemed liabilities of a particular licensee. As a result, the EUB considers requests for review by licensees that do not meet the LLR threshold for a variance of one or more LLR parameters. Virtually all of the requests made by licensees are related to well or facility abandonment and reclamation variations.

3.1.1.2 Orphan Levy

The Orphan Levy, announced in *Bulletin 2006-3: 2006 Orphan Levy*, is based on the revenue requirements identified in the Alberta Orphan Oil and Gas Abandonment and Reclamation Association (Orphan Well Association) budget. The EUB allocates the Orphan Levy cost among the licensees subject to the Licensee Liability Rating (LLR), which for the 2006 fiscal year was based on the February 4 LLR monthly assessment.

Detailed Compliance Data for 2006

Table 19. Orphan Levy, 2006

	2006
Initial invoices	963
Low Risk	
Low Risk (penalty)	156
Low Risk Notice 1	88
Low Risk Notice 2	61
Low Risk Enforcement	41
Low Risk Enforcement with Orders issued	26
Proactive compliance rate for Low Risk	84%

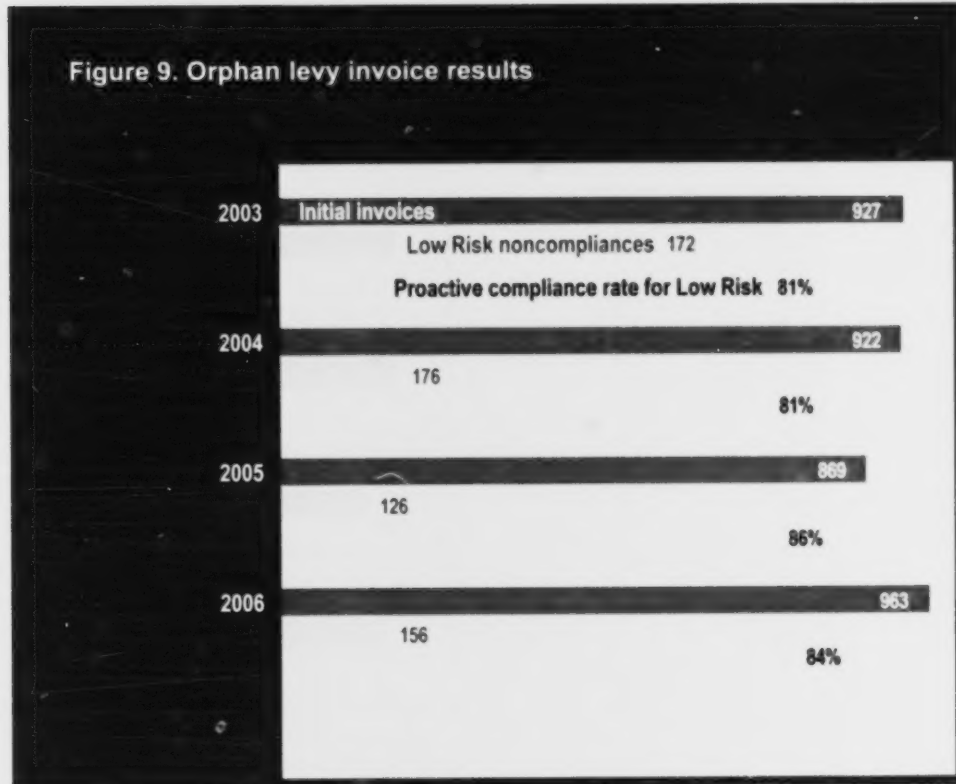
Table 20. Orphan Levy Request for Review Statistics, 2003 - 2006

	2003	2004	2005	2006
Enforcement actions	172	176	126	156
Request for reviews received	7	5	5	5
Request for review rate	4%	3%	4%	3%
Request for reviews granted	1	1	2	3
Request for review denial rate	86%	80%	60%	40%

Table 21. Orphan Levy Compliance Results, 2003 - 2006

	2003	2004	2005	2006
Initial invoices	927	922	869	963
% satisfactory	81	81	86	84
% unsatisfactory (Low Risk)	19	19	14	16

Figure 9. Orphan levy invoice results



3.2 Environment Group

3.2.1 Waste and Storage Section

The Waste and Storage Section conducts audits and assessments in the areas listed below to ensure that licensees and approval holders are in compliance with requirements set out in EUB regulations, directives, and site-specific approvals:

- drilling waste
- oilfield waste generator
- oilfield waste receiver
- material storage

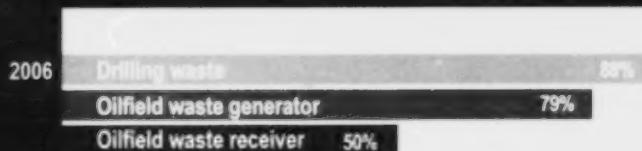
Although the audits and assessments are conducted independently, often there can be overlap between the categories due to the integrated nature of waste and storage issues.

In 2006, all categories of audits and assessments in the Waste and Storage Section went through a formal or informal risk analysis process using the Compliance Assurance

Risking tool. The use of this tool ensures that any enforcement action applied is fair and appropriate and that it provides consistency in instances when similar noncompliance events are encountered.

Noncompliance events identified in audits and assessments can result in enforcement action as detailed in *Directive 019*. Any enforcement action is communicated to the licensee or approval holder in writing, and *Directive 019* is applied to correct noncompliance situations and bring the licensee back into compliance. Throughout 2007, the Waste and Storage Section will continue to conduct audits and assessments in these areas.

**Figure 10. Proactive compliance oilfield waste management
High Risk in 2006**



3.2.1.1 Drilling Waste

Drilling waste audits are conducted to verify that the disposal and management of drilling waste is in compliance with the requirements in the *Oil and Gas Conservation Regulations, Directive 050: Drilling Waste Management*, specific one-time approvals, and a number of EUB informational letters and interim directives.

Candidates for drilling waste audits are randomly selected from the well licence database, which allows all geographic regions of the province and all drilling waste management options to be represented. Complaints received from the public, EUB field staff, Alberta Environment staff, or Alberta Sustainable Resource Development staff can also trigger audits.

Detailed Compliance Data for 2006

Table 22. Drilling Waste, 2006

	2006
Number of audits	75
Low Risk	
Low Risk Notice 1	29
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	9
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	88%

Table 23. Drilling Waste Request for Review Statistics, 2003 - 2006

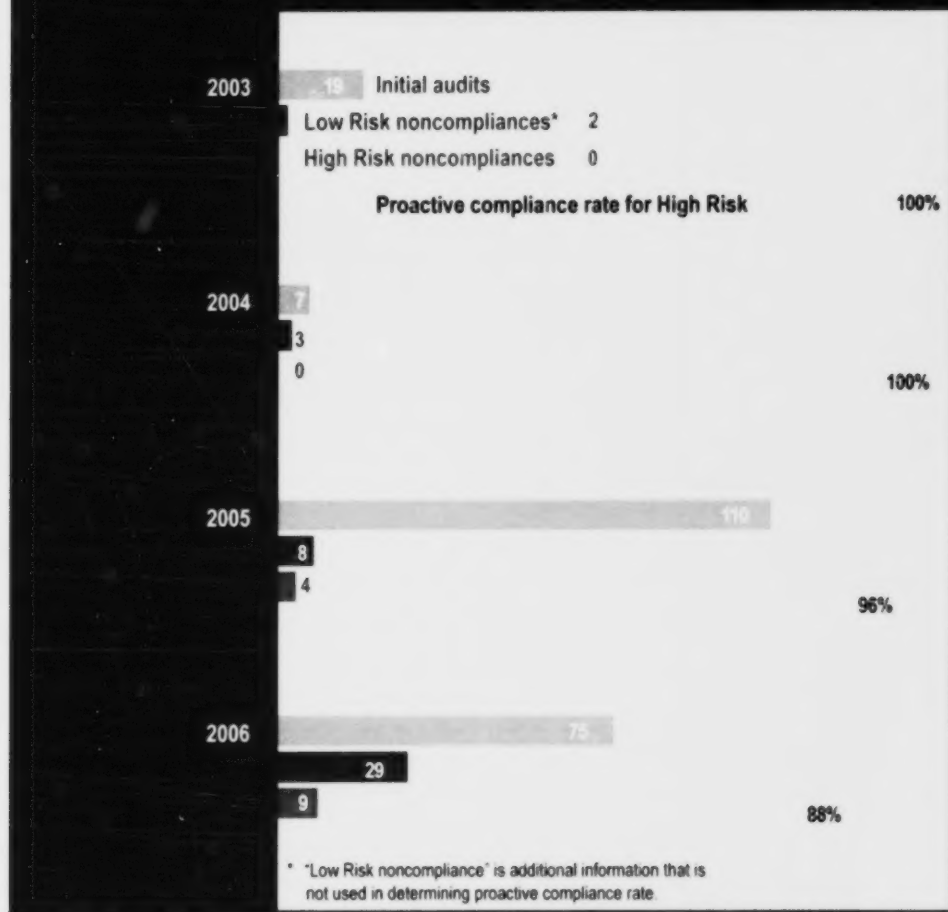
	2003	2004	2005	2006
Enforcement actions	2	3	12	38
Request for reviews received	0	0	0	0
Request for review rate	0%	0%	0%	0%
Request for reviews granted	N/A	N/A	N/A	N/A
Request for review denial rate	N/A	N/A	N/A	N/A

Table 24. Drilling Waste Compliance Results, 2003 - 2006

	2003	2004	2005	2006
Number of audits	19	7	110	75
% satisfactory	89	57	89	49
% unsatisfactory (Low Risk)	11	43	7	39
% unsatisfactory (High Risk)	0	0	4	12

- Throughout 2006, the most common Low Risk noncompliance events were a result of documentation errors.
- High Risk enforcement was a result of incomplete or inaccurate characterization of drilling waste or the use of inappropriate disposal/management techniques.
- Compliance was achieved with all noncompliances after consultation with industry, and where warranted, post-disposal confirmatory sampling and analysis were conducted to ensure that prescribed loading limits were not exceeded.
- The audit protocol will require updating in 2007, as a revised *Directive 050* is expected to be released in 2007.

Figure 11. Drilling waste audit results



3.2.1.2 Oilfield Waste Generator

Oilfield waste generator audit and assessment evaluates upstream oilfield waste management practices to ensure compliance with *Directive 058: Oilfield Waste Management Requirements for the Upstream Petroleum Industry* and related publications.

The audit program assesses whether the wastes were appropriately characterized and classified and whether the management option, including on-site waste management practices (e.g., disposal, treatment, recycling) were suitable based on this information. It also assesses whether the waste generators have an appropriate program in place to track the different types of oilfield wastes from point of generation to point of disposition.

Detailed Compliance Data for 2006

Table 25. Oilfield Waste Generator, 2006

	2006
Number of audits	39
Low Risk	
Low Risk Notice 1	19
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	8
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	79%

Table 26. Oilfield Waste Generator Request for Review Statistics, 2003 - 2006

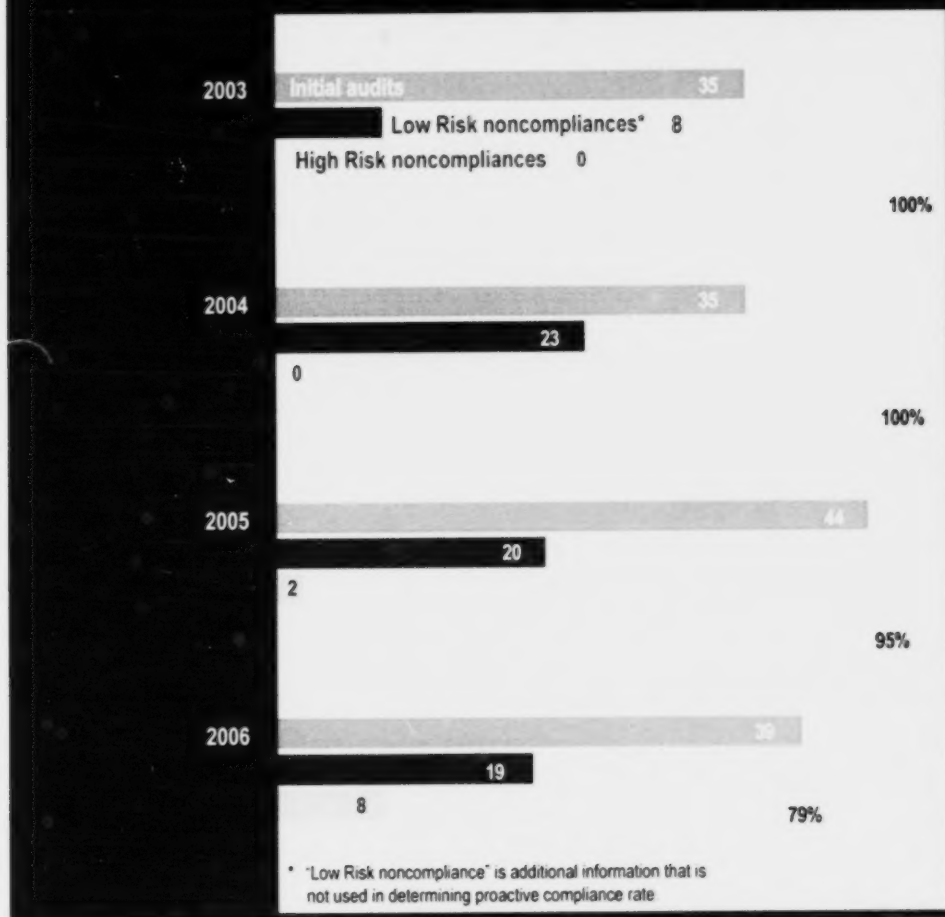
	2003	2004	2005	2006
Enforcement actions	8	23	22	27
Request for reviews received	1	0	0	1
Request for review rate	13%	0%	0%	4%
Request for reviews granted	1	N/A	N/A	1
Request for review denial rate	0%	N/A	N/A	0%

Table 27 Oilfield Waste Generator Compliance Results, 2003 - 2006

	2003	2004	2005	2006
Number of audits	35	35	44	39
% satisfactory	77	34	50	31
% unsatisfactory (Low Risk)	23	66	45	49
% unsatisfactory (High Risk)	0	0	5	20

- The most common Low Risk noncompliance events identified during the 2006 audit program were documentation errors.
- The most common High Risk noncompliance items identified were insufficient waste characterization and classification to substantiate the appropriateness of the management option used, and performance of an activity without an EUB approval where an approval was required.
- Noncompliance events were identified and communicated back to the oilfield waste generators, and compliance was achieved for all noncompliance items identified.

Figure 12. Oilfield waste generator audit results



3.2.1.3 Oilfield Waste Receiver

Oilfield waste receiver audits are conducted to verify that oilfield waste management facilities and components are designed, constructed, and operated in compliance with EUB oilfield waste management facility and component approvals, *Directive 058*, *Directive 055: Storage Requirements for the Upstream Petroleum Industry*, and other EUB requirements as appropriate.

The program verifies that the wastes received at facilities and components were authorized for receipt by the facility or component approval, appropriately characterized and classified, and managed by processes and activities authorized by the facility approval. These audits also evaluate the accuracy of the records tracking, the receipt of the wastes, and the disposition of the separated waste streams and products. The audits also assess whether the facility is being operated and maintained in an environmentally responsible manner, in accordance with applicable EUB requirements.

Detailed Compliance Data for 2006

Table 28. Oilfield Waste Receiver, 2006

	2006
Number of audits	6
Low Risk	
Low Risk Notice 1	1
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	3
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	50%

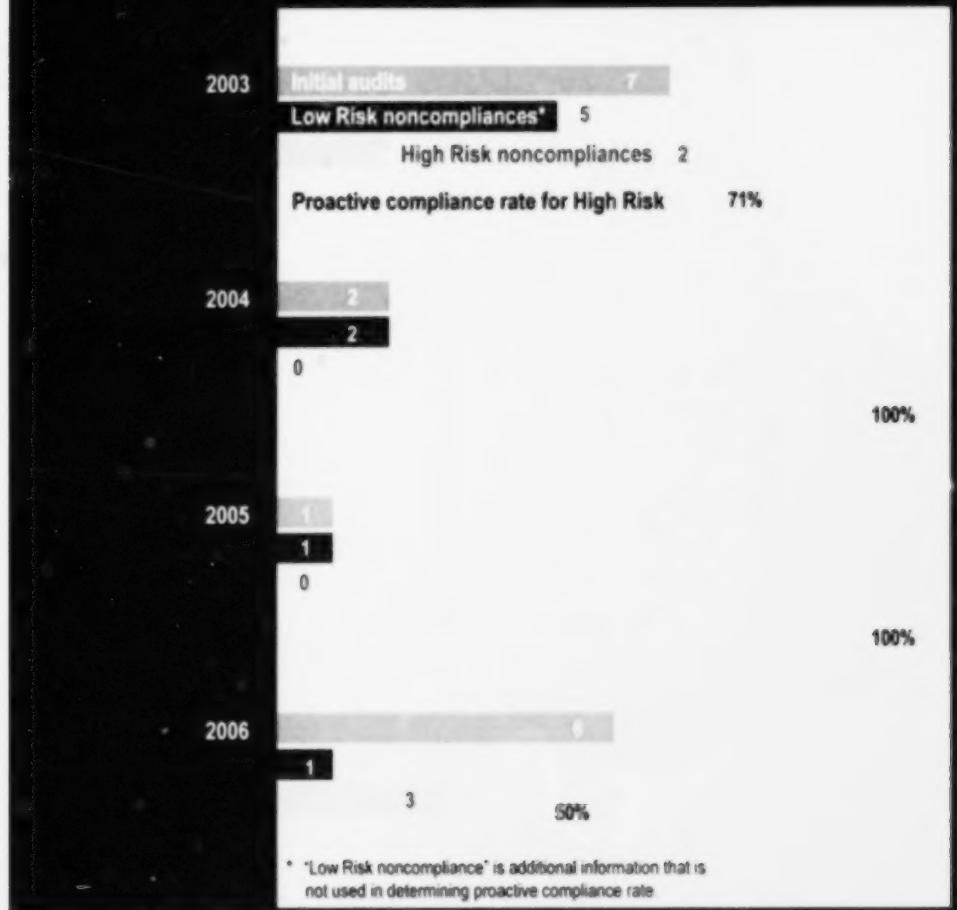
Table 29. Oilfield Waste Receiver Request for Review Statistics, 2003 - 2006

	2003	2004	2005	2006
Enforcement actions	7	2	1	4
Request for reviews received	0	0	0	0
Request for review rate	0%	0%	0%	0%
Request for reviews granted	N/A	N/A	N/A	N/A
Request for review denial rate	N/A	N/A	N/A	N/A

Table 30. Oilfield Waste Receiver Compliance Results, 2003 - 2006

	2003	2004	2005	2006
Number of audits	7	2	1	6
% satisfactory	0	0	0	33
% unsatisfactory (Low Risk)	71	100	100	17
% unsatisfactory (High Risk)	29	0	0	50

Figure 13. Oilfield waste receiver audit results



- The most common Low Risk noncompliance events from the 2006 audit program resulted from errors in reporting waste receipt and disposition values, inadequate secondary containment, and operational changes made without EUB approval.
- The High Risk noncompliance items resulted from surface water runoff controls discharging to a body of water and undertaking waste processing activities without EUB approval.
- Compliance issues are communicated back to the oilfield waste management facility approval holder, and compliance is accomplished through education regarding requirements and collaborative problem solving with the oilfield waste management facility approval holders.
- The Environment Group will continue to provide support to oilfield waste receivers regarding the requirements of *Directive 058* and the associated regulatory requirements. Ongoing audit programs will continue to extend opportunities for waste receivers to improve operations and to meet or exceed the EUB's requirements.

3.2.1.4 Material Storage

Material storage audits are conducted to verify that storage practices on upstream petroleum sites are in compliance with *Directive 055*. This audit program is currently focused on the evaluation of how approval holders and licensees of upstream petroleum facilities, well sites, and pipelines constructed or operating prior to January 1, 1996, meet the intent of *Directive 055*.

Detailed Compliance Data for 2006

Table 31. Material Storage, 2006

	2006
Number of audits	17
Low Risk	
Low Risk Notice 1	8
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	0
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	100%

Table 32. Material Storage Request for Review Statistics, 2005 - 2006

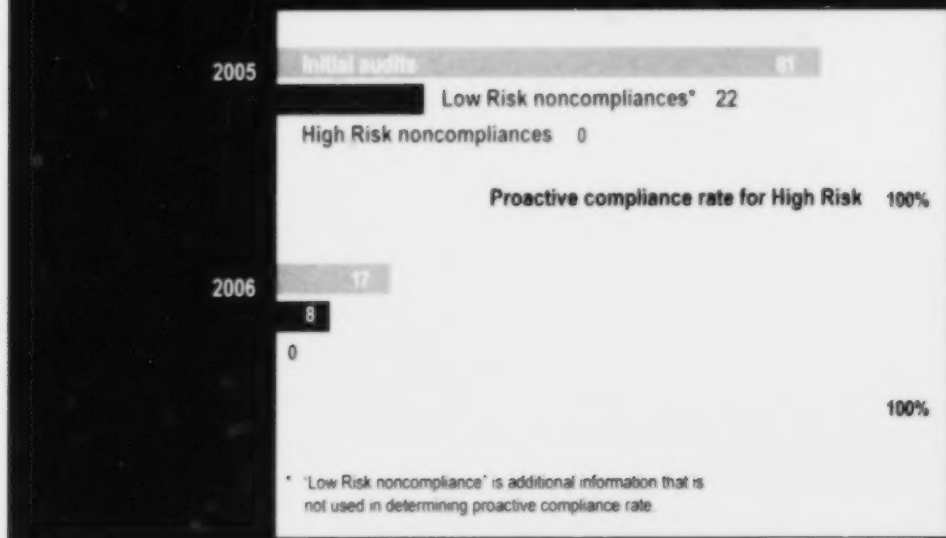
	2005	2006
Enforcement actions	22	8
Request for reviews received	0	0
Request for review rate	0%	0%
Request for reviews granted	N/A	N/A
Request for review denial rate	N/A	N/A

Table 33. Material Storage Compliance Results, 2005 - 2006

	2005	2006
Number of audits	81	17
% satisfactory	73	53
% unsatisfactory (Low Risk)	27	47
% unsatisfactory (High Risk)	0	0

- In 2006, material storage audits were concluded on a cross-section of facilities throughout Alberta.
- The most common Low Risk noncompliance events identified in the 2006 audits were failure to implement an integrity verification plan prior to 2001, failure to continue to verify storage facilities' integrity in accordance with *Directive 055*, and inadequate upgrades of secondary containment. The majority of licensees appear to have taken some steps to comply with *Directive 055*.
- The Environment Group will continue to provide technical support through an ongoing audit program aimed at heightening awareness of *Directive 055* and educating licensees about EUB requirements. *Directive 019* will be used to improve performance through corrective actions, education, and enforcement.

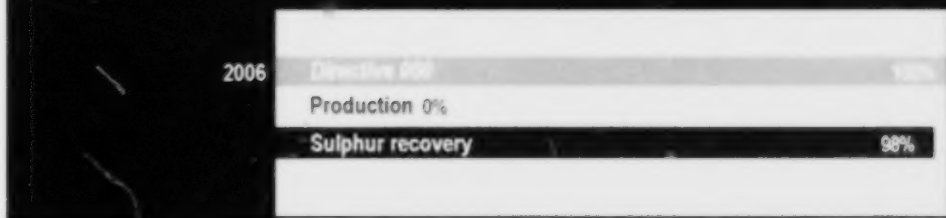
Figure 14. Material storage audit results



3.3 Operations Group

3.3.1 Production Operations Section

Figure 15. Proactive compliance regarding production operation High Risk in 2006



3.3.1.1 Directive 060 Economic Evaluation Audits

The EUB has set out flaring and venting requirements for the upstream petroleum industry in *Directive 060: Upstream Petroleum Industry Flaring, Incineration, and Venting*. The Production Operations Section is responsible for administering and enforcing the economic evaluations requirements of *Directive 060*. The essence of the requirements is twofold. First, operators are required to evaluate the economic viability of solution gas conservation at new oil and bitumen sites; second, if conservation is economical, the solution gas must be conserved within predefined time frames.

Compliance with the requirements is achieved through a combination of education, proactive surveillance, targeted auditing, and enforcement action when appropriate.

Since the initial publication of *Directive 060* in 1999, year-over-year reductions in solution gas flaring and venting have been realized. In 2005, 96.3 per cent of the solution gas produced in the province was conserved, which is the highest level of conservation achieved since the introduction of *Directive 060*.

Detailed Compliance Data for 2006

Table 34. Directive 060 Economic Evaluation, 2006

	2006
Initial audits	17
Low Risk	
Low Risk Notice 1	0
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	0
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	100%

Table 35. Directive 060 Economic Evaluation Request for Review Statistics, 2003 - 2006

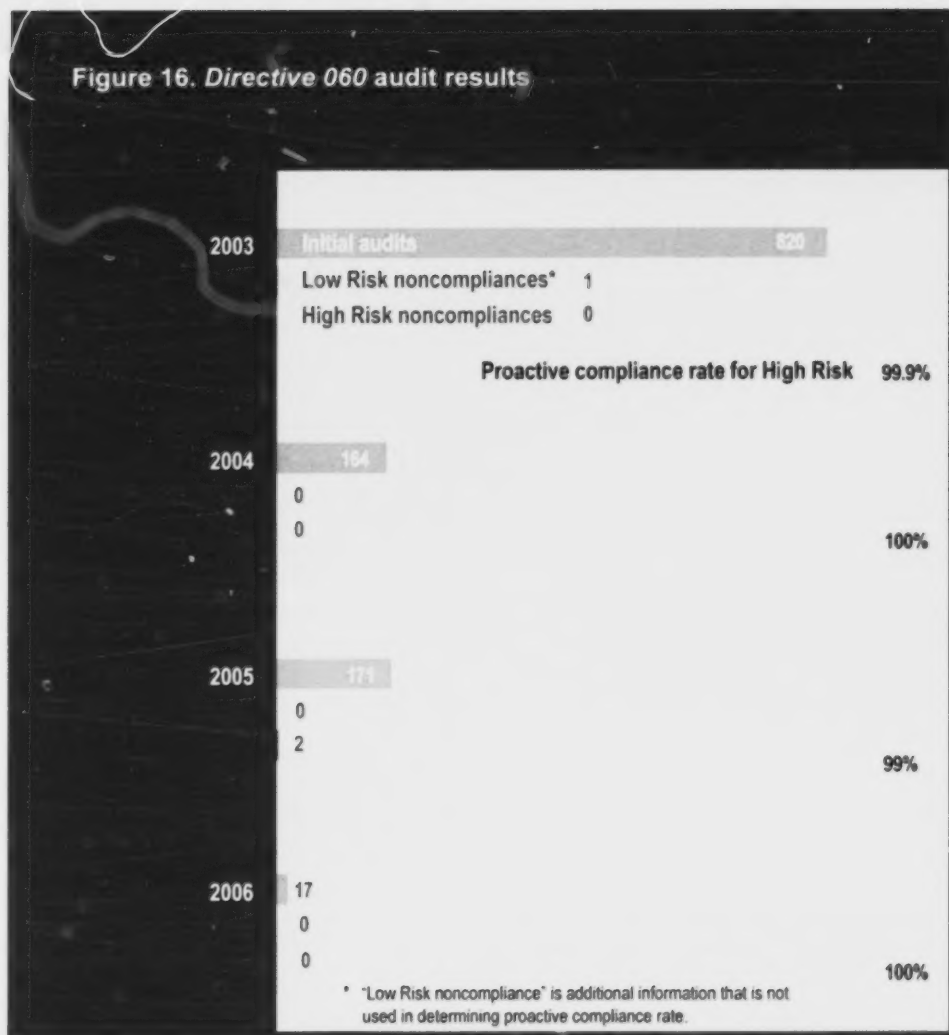
	2003	2004	2005	2006
Enforcement actions	1	0	2	0
Request for reviews received	0	0	0	0
Request for review rate	0%	N/A	0%	N/A
Request for reviews granted	N/A	N/A	N/A	N/A
Request for review denial rate	N/A	N/A	N/A	N/A

Table 36. Directive 060 Economic Evaluation Compliance Results, 2003 - 2006

	2003	2004	2005	2006
Initial audits	820	164	171	17
% satisfactory	100	100	99	100
% unsatisfactory (Low Risk)	0	0	0	0
% unsatisfactory (High Risk)	0	0	1	0

- In 2006, 17 economic evaluation audits were completed on new and existing solution gas flares and vents. This number is down from 2005 due to EUB staff turnover.
- An updated edition of *Directive 060* was published in November 2006. It contains several recommendations from the Clean Air Strategic Alliance (CASA) designed to promote further reductions of solution gas flaring and venting in the province.

Figure 16. Directive 060 audit results



3.3.1.2 Production Measurement and Reporting

The Production Operations Section is responsible for verifying industry's compliance with EUB production measurement and reporting requirements. Production audits are conducted according to the guidelines in *Directive 046: Production Audit Handbook*. Audit units are selected using a risk-based audit protocol or by request from stakeholders.

Detailed Compliance Data for 2006

Table 37. Production, 2006

	2006
Initial audits	16
Low Risk	
Low Risk Notice 1	0
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	16
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	0%

Table 38. Production Request for Review Statistics, 2003 - 2006

	2003	2004	2005	2006
Enforcement actions	105	88	81	16
Request for reviews received	0	0	0	0
Request for review rate	0%	0%	0%	0%
Request for reviews granted	N/A	N/A	N/A	N/A
Request for review denial rate	N/A	N/A	N/A	N/A

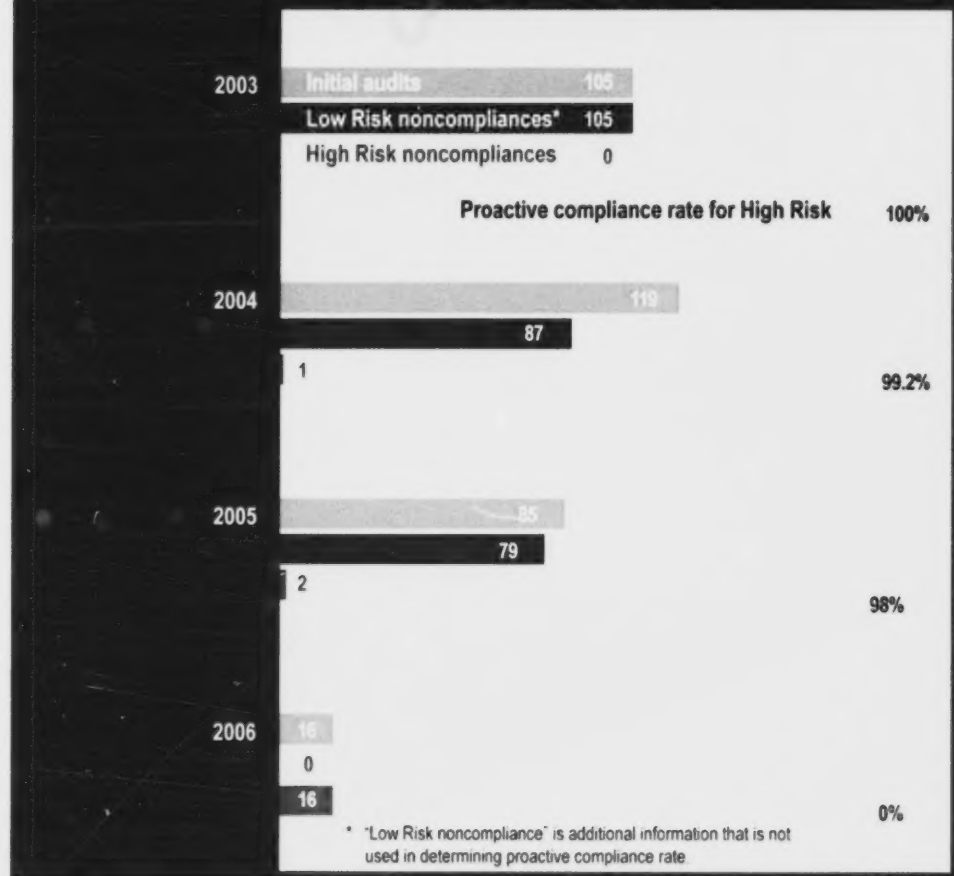
Table 39. Production Compliance Results, 2003 - 2006

	2003	2004	2005	2006
Initial audits	105	119	85	16
% satisfactory	0	23	5	0
% unsatisfactory (Low Risk)	100	76	93	0
% unsatisfactory (High Risk)	0	1	2	100

- A complete restructuring of the Production Audit Team occurred in 2006, resulting in the hiring of six new auditors and one new Audit Team leader. During the year the focus was on training the auditors and reviewing the Production Audit processes and procedures. A direct result of the revamping of the group was the reduction in the number of facilities audited during the year.
- It appears that the proactive compliance rate has dramatically decreased in 2006 compared to previous years. This decrease is not representative of an actual drop in compliance rates, but a reflection of rerating some of the existing noncompliances from Low to High Risk in accordance with *Directive 019*.
- As a result of the rerating of the noncompliance events, all 16 facilities audited during 2006 had both Low and High Risk noncompliance items identified during the audits. The most common High Risk noncompliance events involved inaccurate accounting and reporting of actual hydrocarbon liquid receipts and inaccurate accounting and reporting of actual gas production.
- To improve compliance, the Production Operations Section is taking steps to reduce the number of noncompliance events by directing licensees to examine all of their other wells and facilities that have the same conditions as those identified in the audits. Also, additional sections will be added to *Directive 017: Measurement*

Requirements for Upstream Oil and Gas Operations in the next year to provide licensees with clear requirements relating to production measurement and reporting.

Figure 17. Production audit results



3.3.1.3 Sulphur Recovery Guidelines

The Production Operations Section is also responsible for monitoring and enforcing the calendar quarter-year sulphur recovery efficiency guidelines, as required by *Interim Directive (ID) 2001-03: Sulphur Recovery Guidelines for the Province of Alberta*.

Detailed Compliance Data for 2006

Table 40. Sulphur Recovery Guidelines, 2006

	2006
Initial audits	332
Low Risk	
Low Risk Notice 1	2
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	7
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	98%

Table 41. Sulphur Recovery Guidelines Request for Review Statistics, 2004 - 2006

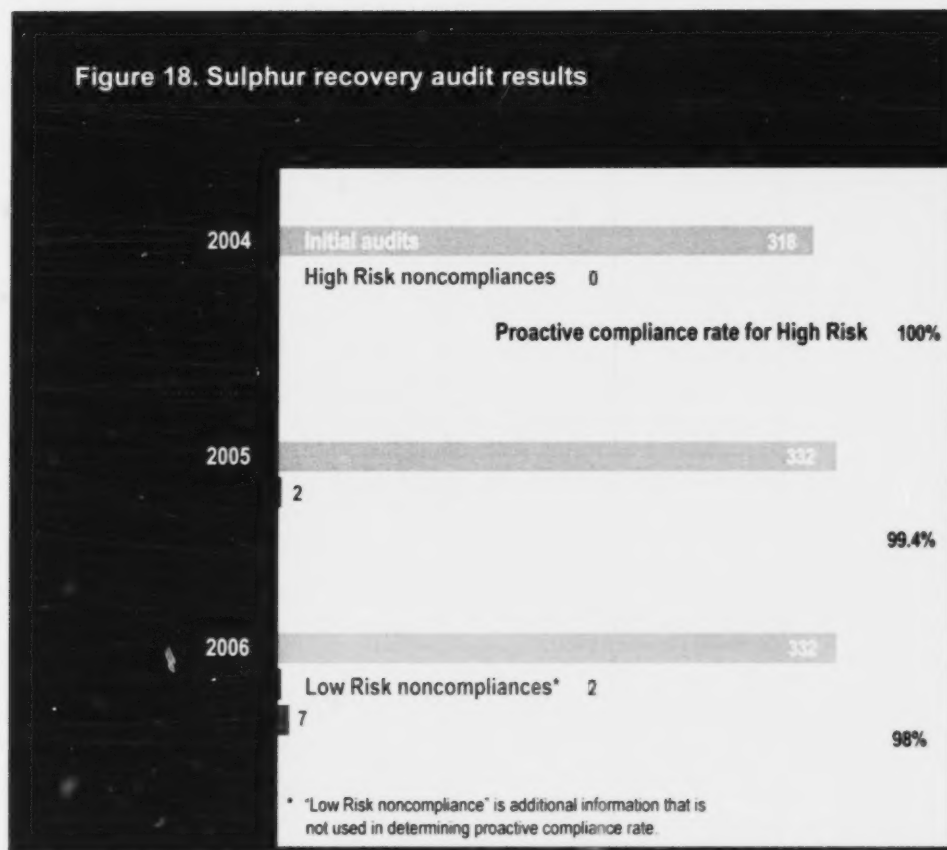
	2004	2005	2006
Enforcement actions	6	10	7
Request for reviews received	0	0	0
Request for review rate	N/A	N/A	N/A
Request for reviews granted	N/A	N/A	N/A
Request for review denial rate	N/A	N/A	N/A

Table 42. Sulphur Recovery Guidelines Compliance Results, 2004 - 2006

	2004	2005	2006
Initial audits	318	332	332
% satisfactory	100	99	97
% unsatisfactory (Low Risk)	0	0	1
% unsatisfactory (High Risk)	0	1	2

- In 2006, sulphur recovery efficiency was monitored at 44 sulphur recovery and 39 acid gas injection facilities to ensure that sulphur recovery was met on a calendar quarter-year basis. Acid gas injection is treated as sulphur recovered.
- In 2006, 332 reviews found 7 noncompliant events related to the approved calendar quarter-year sulphur recovery efficiency. Such an event is initially considered to be a High Risk Action 1. These 7 events did not result in any escalations to High Risk Action 2.

Figure 18. Sulphur recovery audit results



3.3.2 Well Operations Section

The Well Operations Section is responsible for ensuring that wells in Alberta are drilled, completed, operated, and abandoned in accordance with EUB rules and regulations.

Detailed Compliance Data for 2006

Table 43. Well Abandonment, 2006

	2006
Initial audits	10
Low Risk	
Low Risk Notice 1	0
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	0
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	100%

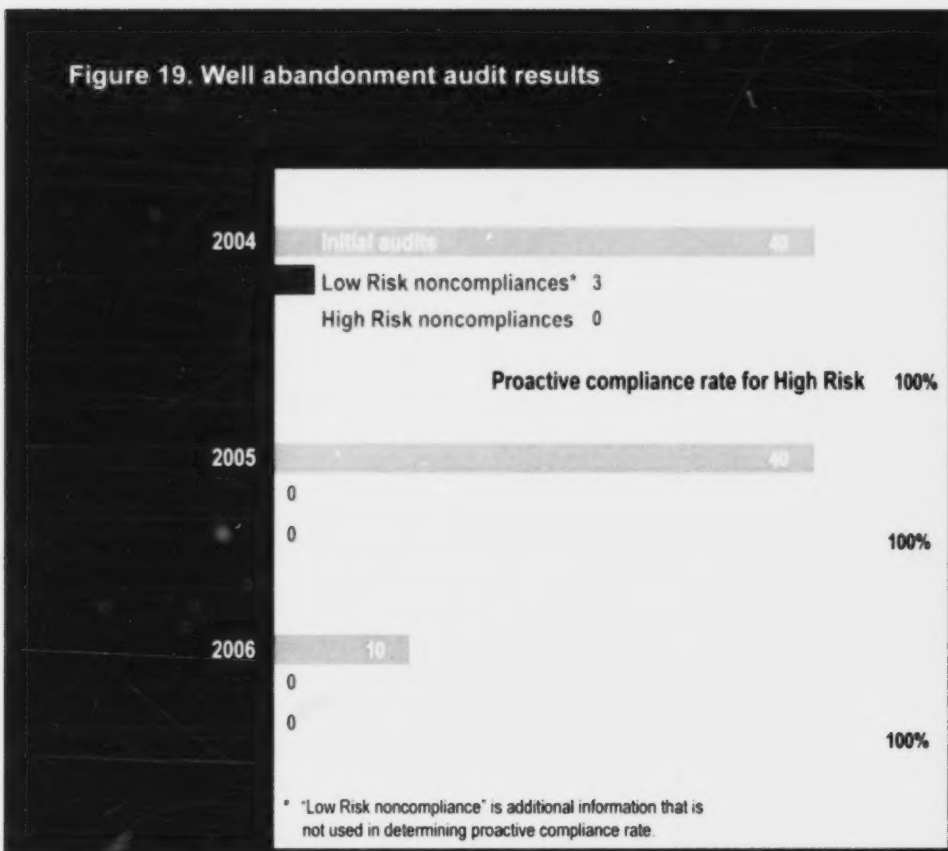
Table 44. Well Abandonment Request for Review Statistics, 2004 - 2006

	2004	2005	2006
Enforcement actions	3	0	0
Request for reviews received	0	0	0
Request for review rate	N/A	0%	N/A
Request for reviews granted	N/A	N/A	N/A
Request for review denial rate	N/A	N/A	N/A

Table 45. Well Abandonment Compliance Results, 2004 - 2006

	2004	2005	2006
Initial audits	40	40	10
% satisfactory	93	100	100
% unsatisfactory (Low Risk)	7	0	0
% unsatisfactory (High Risk)	0	0	0

Figure 19. Well abandonment audit results



- The well abandonment audits conducted in 2006 were of 10 randomly selected abandonments identified as nonroutine by licensees. All audits proved to be in compliance with *Directive 020: Well Abandonment Guide*.

4 Fort McMurray Regional Office



4.1 Mineable Oil Sands

The Fort McMurray Regional Office is responsible for oil sands mining activity, including applications, operational and field surveillance, aboriginal relations, geology and reserves, and environmental services.

The Fort McMurray office became fully functional in carrying out the EUB Incident Response and Reporting Protocol on August 1, 2006. Its 24-hour emergency contact phone number, 780-881-1283, was set up to respond to all industrial incidents in the Fort McMurray area.

Figure 20. Proactive compliance regarding oil sands High Risk requirements in 2006

Mineable oil sands	100%
Operating criteria	100%

Detailed Compliance Data for 2006

Table 46 . Mineable Oil Sands, 2006

	2006
Initial inspections	24
Low Risk	
Low Risk Notice 1	0
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	0
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	100%

Table 47. Mineable Oil Sands Request for Review Statistics, 2004 - 2006

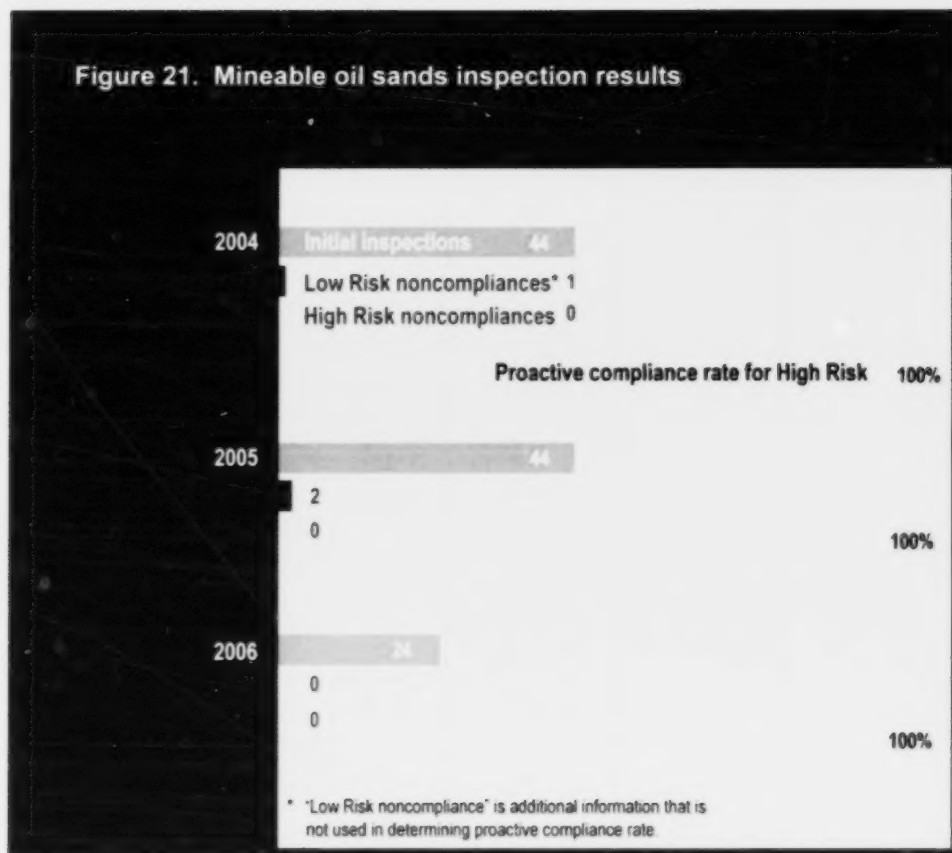
	2004	2005	2006
Enforcement actions	1	2	0
Request for reviews received	0	0	0
Request for review rate	0%	0%	N/A
Request for reviews granted	N/A	N/A	N/A
Request for review denial rate	N/A	N/A	N/A

Table 48 . Mineable Oil Sands Compliance Results, 2004 - 2006

	2004	2005	2006
Number of inspections	44	44	24
% satisfactory	98	95	100
% unsatisfactory (Low Risk)	2	5	0
% unsatisfactory (High Risk)	0	0	0

- In 2006, a total of 18 site inspections were carried out by EUB staff in Fort McMurray:
 - Oil sands mine inspections: 5 mine site inspections were carried out to ensure that pit limits, overburden disposal areas, and lease boundaries were in conformance with the annual mine plans submitted by each operator.
 - Plant inspections: 5 process-related plant inspections were carried out to ensure that recommendations in the final report made by the on-site investigation team for each incident were implemented to prevent recurrence of similar incidents; 3 general inspections were carried out at specific oil sands operations in 2006.
 - Geotechnical inspections: 2 geotechnical inspections were carried out for a breached dry-dike of a tailings pond and the construction of a waste dump at a new mine site.
 - Tailings ponds inspections: 3 inspections were carried out to monitor the state of existing tailings ponds and to verify progress in tailings management which was reported by each oil sands operator.

Figure 21. Mineable oil sands inspection results



4.2 Operating Criteria

Uniform resource recovery requirements are applied to all oil sands mine and processing plant sites through the use of operating criteria. Operating criteria and enforcement actions are detailed in *ID 2001-07: Operating Criteria—Resource Recovery Requirements for Oil Sands Mine and Processing Plant Sites*.

Table 49. Operating Criteria, 2006

	2006
Initial inspections	4
Low Risk	
Low Risk Notice 1	0
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
High Risk	
High Risk Action 1	0
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	100%

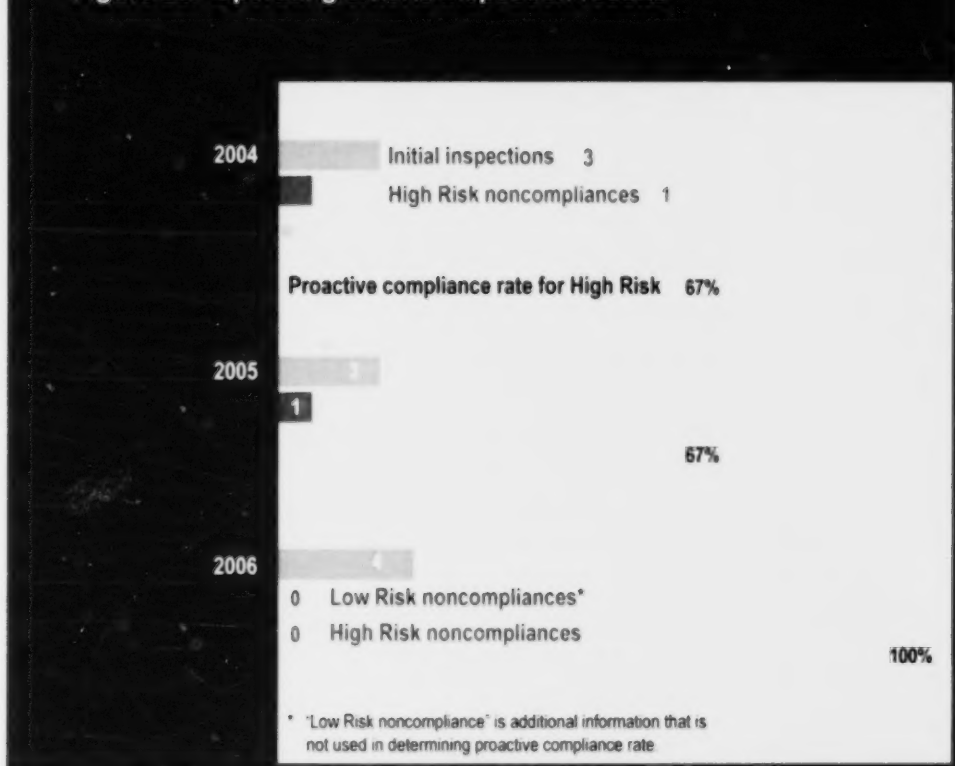
Table 50. Operating Criteria Request for Review Statistics, 2004 - 2006

	2004	2005	2006
Enforcement actions	1	1	0
Request for reviews received	0	0	0
Request for review rate	0%	0%	N/A
Request for reviews granted	N/A	N/A	N/A
Request for review denial rate	N/A	N/A	N/A

Table 51 . Operating Criteria Compliance Results, 2004 - 2006

	2004	2005	2006
Number of inspections	3	3	4
% satisfactory	67	67	100
% unsatisfactory (Low Risk)	0	0	0
% unsatisfactory (High Risk)	33	33	0

Figure 22. Operating criteria inspection results



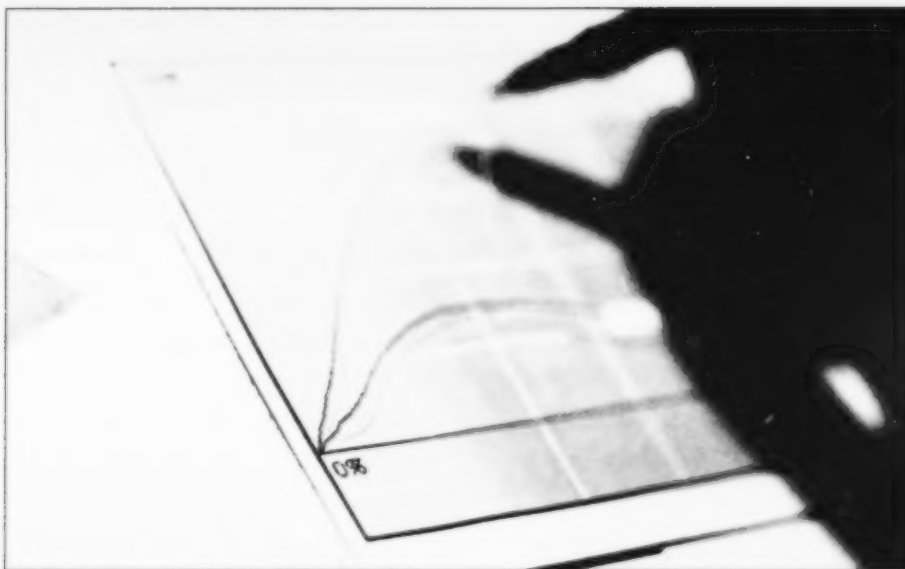
- In 2006, the Fort McMurray Regional Office continued to monitor surface-mined oil sands licensee compliance with the standards and requirements described in
 - the *Oil Sands Conservation Act*,
 - the *Oil Sands Conservation Regulation*,
 - *ID 2001-07*,

- *ID 2001-03*,
 - various other interim directives and informational letters, such as the memorandums of understanding between Alberta Environment and the EUB respecting spills and reporting requirements, and
 - licensee conditions of approval.
- In 2006, a total of 54 incident investigations, inspections, and audits were carried out by EUB staff from the Fort McMurray office:
 - Incident investigations: 24 investigations were carried out on incidents that required a site visit. Major incidents were jointly investigated by process, geotechnical and environmental staff of the EUB stationed in the Fort McMurray office. Significant incidents requiring site inspection and investigation in 2006 included a major leak of ammonia gas and a breach in a dry-dike of tailings pond.
 - 18 site inspections (see Section 4.1: Mineable Oil Sands).
 - Site and measurement audits: 4 measurement audits were carried out for bitumen recovery and solvent loss at existing oil sands facilities. 8 on-site audits were conducted in areas of the mining, geotechnical and tailings management.
 - In 2006, a total of 48 technical reviews were completed by the Fort McMurray staff.
 - 5 annual mine plans were reviewed for verification of pit limits, waste balance and reconciliation, economic viability, and sterilization of the resource at each mineable oil sands operation.
 - 5 technical reviews were completed to validate the mine data of oil sands reserves and resources, with a follow-up for clarification of deviation in the mine survey data with each operator.
 - 4 technical reviews of the mine operations were conducted to measure performance against the operating criteria for each oil sands operator.
 - 5 existing oil sands operations were reviewed for compliance with *ID-2001-07* bitumen resource recovery.
 - 3 technical reviews of sulfur recovery at each bitumen upgrader were conducted for compliance with *ID 2001-03*.
 - 4 quarterly performance reports of oil sands operators were reviewed against the conditions of approval.
 - 5 technical reviews of company annual reports were conducted, and EUB staff provided each operator with feedback. Where necessary, the EUB requested clarifications.
 - 10 technical reviews of various geotechnical specific requests by oil sands operators were conducted, and the EUB granted approvals in some cases.
 - 6 technical reviews were conducted on existing tailings management techniques, research, and development at a pilot plant.
 - The Fort McMurray Regional Office received a total of 9 applications in 2006, of which 2 were for major expansions and 4 for new oil sands operations:
 - 3 applications went to hearings and were subsequently approved.
 - 3 applications continue to be reviewed by the Fort McMurray staff.

- 1 application was approved for a major expansion without a public hearing.
- 2 applications were approved for minor work at existing oil sands operations.
- The Fort McMurray staff conducted a total of 72 audits for bitumen production and solvent loss, mine losses, production accounting, and geotechnical matters:
 - 5 measurement audits were conducted to verify that bitumen recovery and solvent loss data reported by each operator were accurate within a 2 per cent margin of error.
 - 4 mine audits were conducted to establish mine losses for the reporting year.
 - 60 audits were conducted to verify the accuracy of S-23 Monthly Oil Sands Processing Plant Statements submitted by each oil sands operator.
 - 3 geotechnical audits were conducted to verify the integrity and application of sound engineering principles in building dikes for tailing ponds by one oil sands operator.

In 2006, the Fort McMurray Regional Office developed EUB risk assessed noncompliances specific to the mineable oil sands facilities under the EUB CAI.

5 Information and Systems Services Branch



5.1 Information Collection and Dissemination Group

The Information Collection and Dissemination Group in the Information and Systems Services Branch collects and disseminates energy resources information. The information collected is data generated by industry during the course of resource exploration, development, and production activities in accordance with regulations and directives.

5.1.1 Information Collection Section

5.1.1.1 Well Drilling Log Reporting

Well drilling logs submission requirements are legislated in the *Oil and Gas Act* and *Regulations*, Section 11.140.

All well drilling logs, including both open and cased hole logs, are collected in paper format. In addition, open hole logs are collected in digital format, in accordance with *Directive 021: Standards for the Submission of Digital Log Data to the EUB*.

Core analysis data requirements are in accordance with Section 11.040(1) of the *Oil and Gas Act* and *Regulations*.

Compliance with submission requirements for paper logs and core analysis are reviewed monthly.

Detailed Compliance Data for 2006

Table 52. Annual Log Submissions, 2006

	2006
Number of logs processed	328 092
Missing or overdue logs	14 034
Low Risk	
Low Risk Notice 1	1
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
Proactive compliance rate for Low Risk	100%

- Core analysis data must be submitted within one month of the completion of the analysis involving routine measurements of porosity, permeability, or fluid saturation.
- The core intervals are verified against well drilling and completions data to ensure that data submissions (core intervals) are correct.
- Approximately 1946 core analyses were submitted in 2006.

5.1.1.2 Monthly Volumetric Reporting

In accordance with *Directive 007: Production Accounting Handbook*, oil and gas licensees in Alberta are required to file a record in the Petroleum Registry of Alberta (Registry) on the monthly activities at wells, facilities, and pipelines. These data are gathered data to maintain an accurate historical record of a well's hydrocarbon and by-product production.

The Registry facilitates the exchange of data among upstream oil and gas industry partners and between industry and the Alberta Ministry of Energy.

Facility licensees must enter all well and facility volumetric data into the Registry on a monthly basis for batteries, gas gathering systems, gas plants, custom treating, injection, meter stations, pipelines, refineries, and terminals.

Prior to the EUB's extraction of volumetric data each month, the Registry validates and balances all volumetric data submitted since the last EUB extraction. The Registry determines which facilities are missing and, if data have been submitted for a facility, which wells are missing. The Registry sends notifications to facility licensees whose submissions are in error or are still missing from previous submission cycles. Licensees that do not respond and correct facility submissions in error or submit missing data prior to the next EUB extraction are subject to enforcement actions.

Figure 23. Proactive compliance regarding Low Risk production and well data in 2006

2006	Monthly volumetric	99.8%
	Well drilling and completions data	89%

Detailed Compliance Data for 2006

Table 53. Monthly Volumetric Reporting, 2006

	2006
Facilities that must submit reports*	306 284
Number of errors	1 053
Low Risk	
Low Risk Notice 1	722
Low Risk Notice 2	154
Low Risk Enforcement	44
Low Risk Enforcement with Orders issued	0
Proactive compliance rate for Low Risk	99.8%

* The facility counts reflect the total expected "active" facilities for each production month in 2006 only.

- The most common errors each month are
 - well(s) missing from a facility due to either well status changes or retroactive facility link changes,
 - metering differences, and
 - facility imbalance errors.
- Errors typically spike during the Christmas and summer vacation periods.

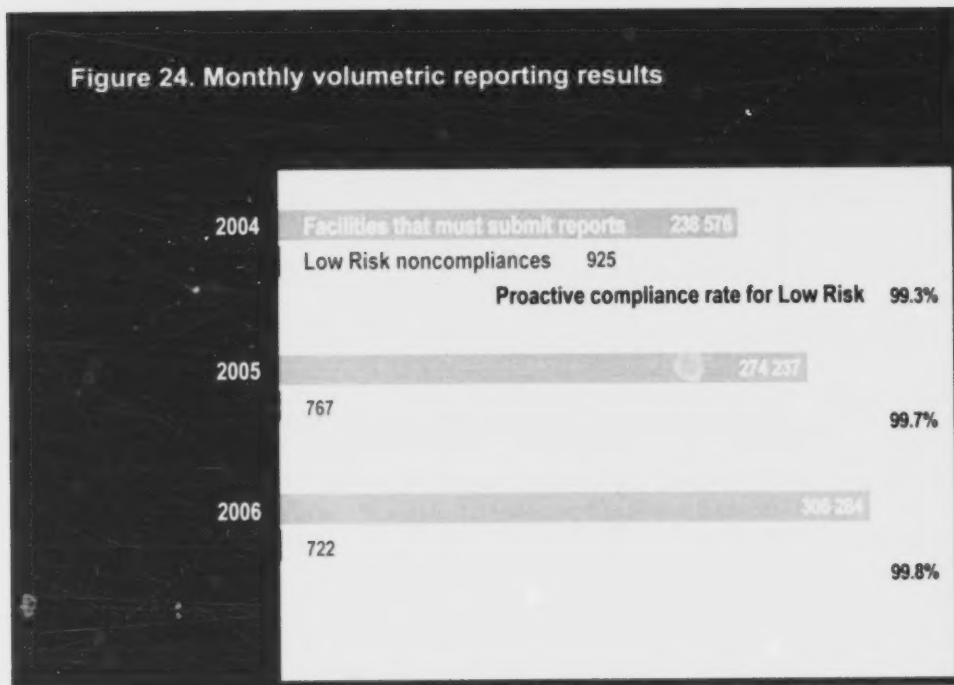
Table 54. Monthly Volumetric Reporting Request for Review Statistics, 2004 - 2006

	2004	2005	2006
Enforcement actions	925	767	722
Request for reviews received	323	180	149
Request for review rate	35%	23%	21%
Request for reviews granted (credit memos)	291	153	118
Request for review denial rate	10%	15%	21%

Table 55. Monthly Volumetric Reporting Compliance Results, 2004 - 2006

	2004	2005	2006
Facilities that must submit reports	925	767	722
% satisfactory	99.3	99.7	99.8
% unsatisfactory (Low Risk)	0.7	0.3	0.2

Figure 24. Monthly volumetric reporting results



- The most common reason for a licensee requesting a review of an invoice is a result of another licensee's submission or non-submission of volumetric or infrastructure data.
- Requests for review are accepted within 15 days of an invoice date. The submitting operator is notified of the results of the request for review in writing within 10 calendar days of its receipt.

5.1.1.3 Well Drilling and Completions Reporting

Section 12.010 of the *Oil and Gas Conservation Regulations* requires the licensee or representative of the licensee to keep on file records and reports of daily operations on wells that are in the process of being drilled, completed, reconditioned, or abandoned, in accordance with *Directive 059: Well Drilling and Completion Data Filing Requirements*.

These drilling and completion data are collected to maintain an accurate record of each well drilled in Alberta, both for use within the EUB and for the use of the oil and gas industry in performing drilling and servicing operations in a safe and efficient manner.

Within 30 days from the conclusion of an operation or prior to a well status change required for the volumetric submission to the Registry, the licensee or its representative must submit the electronic drilling and/or completion data to the EUB. A hard-copy report of the daily records must also be submitted within 7 days of the acceptance of the corresponding electronic data.

Failure to submit drilling and completion data could result in environmental issues, cancellation of licences, inaccurate well evaluations, or hindering the required data flow.

Detailed Compliance Data for 2006

Table 56. Well Drilling and Completions Data Requirement, 2006

	2006
Notification	545
Low Risk	
Low Risk Notice 1	60
Low Risk Notice 2	9
Low Risk Enforcement	2
Low Risk Enforcement with Orders issued	0
Proactive compliance rate for Low Risk	89%

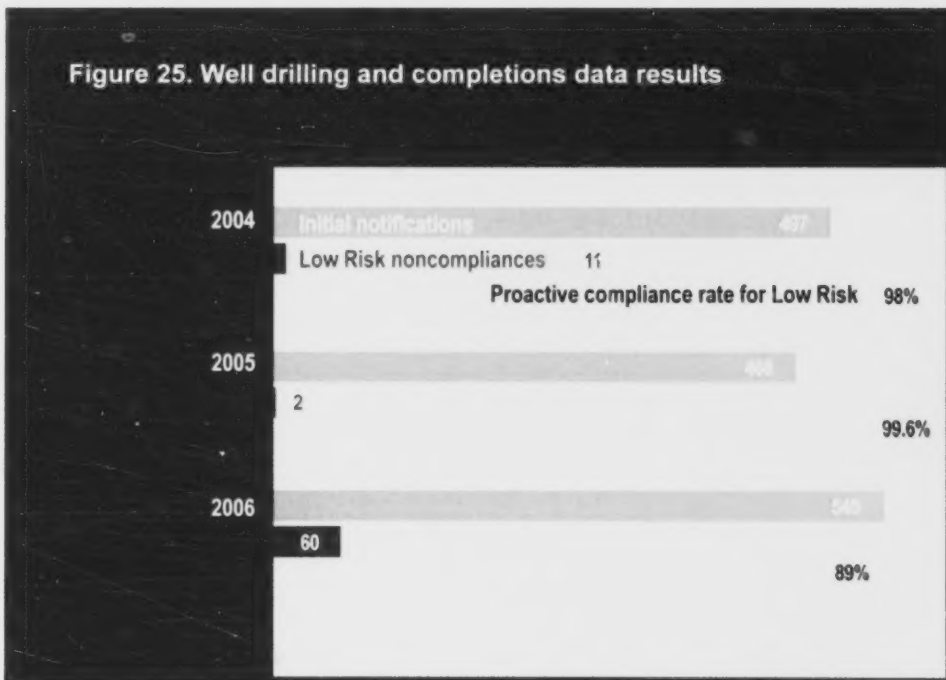
Table 57. Well Drilling and Completions Data Requirement Request for Review Statistics, 2004 - 2006

	2004	2005	2006
Enforcement actions	11	2	60
Request for reviews received	0	0	0
Request for review rate	0%	0%	0%
Request for reviews granted (credit memos)	N/A	N/A	N/A
Request for review denial rate	N/A	N/A	N/A

Table 58. Well Drilling and Completions Data Requirement Compliance Results, 2004 - 2006

	2004	2005	2006
Notifications	497	466	545
% satisfactory	98	99.6	89
% unsatisfactory (Low Risk)	2	0.4	11

Figure 25. Well drilling and completions data results



- Drilling activity continued to increase in 2006, with the most common noncompliance for drilling and completion data requirements being data not being submitted or incorrect data being submitted.

5.1.1.4 Well Test Data Reporting

Well test data are collected in accordance with requirements in *Directive 040: Pressure and Deliverability Testing Oil and Gas Wells*. This includes drillstem test reports, pressure and deliverability data, and gas and fluid analysis.

The well test data compliance reports follow the enforcement policy stated in *Directive 040* and *Directive 019*.

Annual Gas and Oil Pool Pressure Survey

The development of the annual gas and oil pool pressure survey requirements is established in survey schedules. Survey schedules are based on established recoverable reserves and stage of depletion, plus well productivity (Section 4.5.1 of *Directive 040*), in addition to EUB-defined special needs for the separate gas and oil pool schedules.

The frequency of required tests may be anywhere from once per year to once every four years.

The survey schedules are updated regularly to identify the current status (outstanding, fulfilled, under review) of requirements.

Detailed Compliance Data for 2005

Table 59. Annual Gas and Oil Pressure Surveys, 2005

	2005
Pools requiring surveys	687
Pool requirements fulfilled	415
Low Risk	
Low Risk Notice 1	94
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
Proactive compliance rate for Low Risk	86%

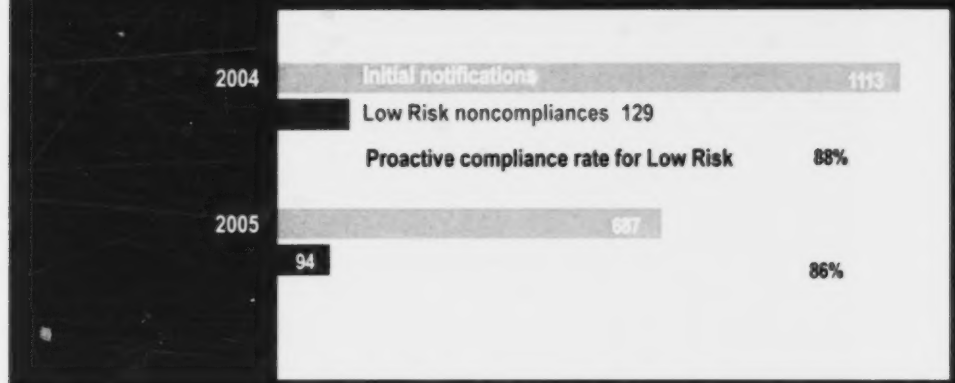
Table 60. Annual Gas and Oil Pressure Surveys Request for Review Statistics, 2004 - 2005

	2004	2005
Total invoices	129	94
Request for reviews received	14	21
Request for review rate	11%	22%
Request for reviews granted (credit memos)	14	21
Request for review denial rate	0%	0%

Table 61. Annual Gas and Oil Pressure Surveys Compliance Results, 2004 - 2005

	2004	2005
Pools requiring surveys	1 113	687
% satisfactory	88	86
% unsatisfactory (Low Risk)	12	14

Figure 26. Annual gas and oil pressure survey results



- Statistics for 2006 are not available at the time of this publication. Because test results are due within 90 days of having been completed, data from tests conducted in December 2006 are not due until March 2007.

Initial Gas and Oil Testing

When the third consecutive month of production is reported on wells, procedures are in place to establish if the complete initial test requirements have been fulfilled in accordance with *Directive 040*.

Most oil and gas wells are required to be tested once they are drilled and before any significant production or reservoir depletion occurs.

Almost all gas wells are required to also have a deliverability/absolute open flow potential test completed, with a preference to testing in line as opposed to flaring.

Compliance for these data requirements are reviewed monthly.

Detailed Compliance Data for 2006

Table 62. Initial Gas and Oil Well Testing, 2006

	2006
Wells completing 3 months of consecutive production	95 941
Wells required to meet initial testing requirements (reported on Web site [notice])	4 420
Low Risk	
Low Risk Notice 1	396
Low Risk Notice 2	0
Low Risk Enforcement	0
Low Risk Enforcement with Orders issued	0
Proactive compliance rate for Low Risk	99.6%

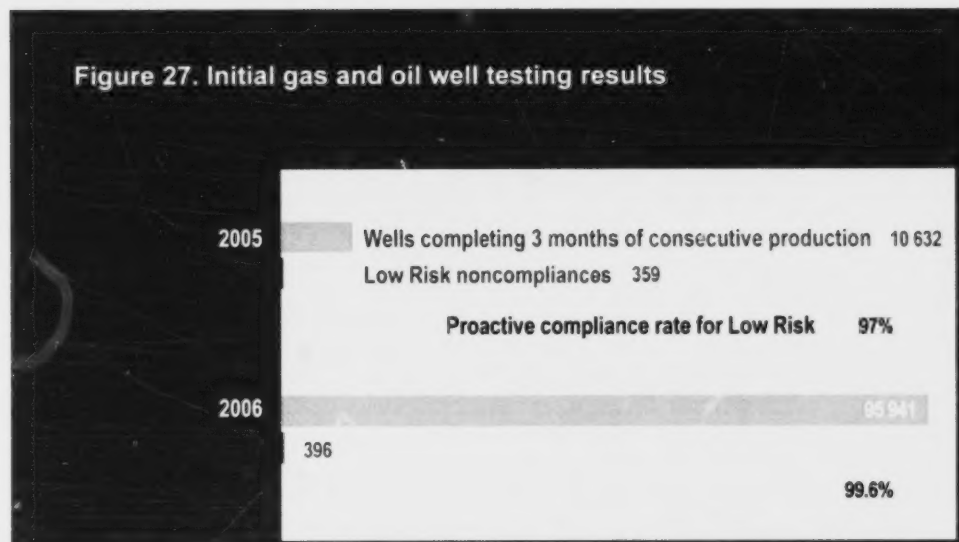
Table 63. Initial Gas and Oil Well Testing Request for Review Statistics, 2005 - 2006

	2005	2006
Total invoices	359	396
Request for reviews received	92	53
Request for review rate	26%	13%
Request for reviews granted (credit memos)	90	53
Request for review denial rate	2%	0%

Table 64. Initial Gas and Oil Well Testing Compliance Results, 2005 - 2006

	2005	2006
Wells completing 3 months of consecutive production	10 632	95 941
% satisfactory	97	99.6
% unsatisfactory (Low Risk)	3	0.4

Figure 27. Initial gas and oil well testing results



- The two most common initial testing Low Risk noncompliance events in 2006 were failure to submit and improper test submissions (e.g., wrong Test Purpose Indicator).
- Licensees are given an opportunity to resubmit data to make corrections to original submissions. This results in most appeals being granted, as indicated above.

6 Public Safety / Field Surveillance Branch



6.1 Summary of Activity

6.1.1 Role of Public Safety / Field Surveillance Staff

On October 16, 2006, an internal structure change was announced. The Public Safety Group was formed and the EUB's Field Surveillance Branch was renamed as the Public Safety / Field Surveillance (PS/FS) Branch. The Field Surveillance functions remained the same with the addition of the new group. The PS/FS Branch consists of two groups and an advisory team:

- Public Safety Group, including two sections: Community and Aboriginal Relations Section, which focuses on proactively engaging stakeholders to increase awareness of the EUB, and Emergency Planning and Assessment (EPA) Section, which focuses on emergency response plan reviews, approvals, and assessment and setback requirements
- Field Surveillance Group, which focuses on surveillance and enforcement
- Advisory Team, which focuses on emergency issues, people and learning, and regulatory process. The advisors currently work within EPA and will eventually be integrated into this group

Currently, the PS/FS Branch has nine Field Centres located throughout Alberta (see Figure 28). The EUB also has a regional office located in Fort McMurray, which is responsible for oil sands development, mining, and processing.

Field staff have three primary goals:

- 1) **Licensee/Operator Field Performance:** Reduce potential public safety and environmental impacts from oil and gas activity by
 - inspecting oil and gas operations to ensure that licensees are in compliance with all applicable standards, specifications, and approval conditions;

Figure 28. EUB Field Centre boundaries and Fort McMurray Regional Office



- focusing inspection activities on higher-risk facilities, such as sour gas wells, pipelines, and facilities located near environmentally sensitive locations;
 - focusing on problem licensees with poor inspection records, with the goal of long-term improvements; and
 - taking appropriate enforcement action when noncompliance occurs.
- 2) **Incident Response:** Timely and effective response to minimize the effects on the public and environment from incidents by
- responding to oil and gas emergencies;
 - responding to and addressing complaints related to energy development and environmental issues; and
 - monitoring the clean-up of oil and saltwater spills.

- 3) **Community and Aboriginal Relations:** Proactively engage stakeholders to ensure understanding and increase awareness of the role of the EUB by
- participating in meetings to answer questions and provide information about the EUB's regulatory process, roles, and responsibilities;
 - educating stakeholders on new and revised requirements;
 - building relationships to inspire trust and confidence; and
 - liaising with stakeholders to enable better decisions and processes that are in the public interest.

6.1.2 Inspections and Enforcement

Inspections are prioritized based on the weighting of three key criteria—operator (licensee/contractor) history, site sensitivity, and inherent risk (OSI)—with respect to the facility or operation. Field staff focus on licensees with previous Low or High Risk noncompliances, including those with a persistent noncompliance history. Sensitivity is determined by whether the facility is in a forested or agricultural area, with an increased inspection emphasis on areas with high numbers of public complaints and high frequency of environmental incidents. The inherent risk of a facility or operation is determined by reviewing specific technical details about the facility, such as the complexity of the operation and whether the facility is sweet or sour.

In 2006 the total number of field inspections, which includes well site inspections, was 14 860. There were 16 782 inspections in 2005. The difference in inspection numbers for 2006 was due to several factors. They include an increased number of well control incidents and increased time spent on the investigation of these events. In addition, six staff were added to Community and Aboriginal Relations. Significant resources were required to ensure that these staff were properly trained and able to proactively engage stakeholders and address issues. Staff training was also required on the new enforcement process.

Industry's compliance record with respect to satisfactory inspections decreased slightly, from 77.4 per cent in 2005 to 76.5 per cent in 2006. The Low Risk noncompliances were 20.8 per cent in 2005, compared to 20.7 per cent in 2006. The overall percentage of High Risk noncompliances was 2.8 per cent in 2006, compared to 1.8 per cent in 2005.

The EUB will continue to encourage licensees to proactively identify issues and ensure compliance.

Table 65 summarizes the field inspections/investigations that occurred in 2006 and includes the number of initial¹ inspections in each category. Each inspection category includes the number of those found in compliance and the number with Low and High Risk noncompliances.

In 2007, staff will continue to focus on pipeline corrosion, noncompliant licensees, air monitoring activities, reduction of odours, and improving communication with synergy groups² and communities throughout the province.

¹ An initial inspection is the first inspection on a facility in a designated time period.

² To ensure that the impact of resource development and operations is minimized on an ongoing and proactive basis, synergy groups are formed to identify issues and work on collaborative solutions to the problems identified. Synergy groups usually involve public, industry, and government representatives.

Table 65. Field inspections/investigations, 2006¹

	Initial	In compliance	Low Risk noncompliance	High Risk noncompliance
Drilling rigs	414	328	45	41
Service rigs	280	251	22	7
Oil production facilities	3 621	2 692	866	63
Gas production facilities	2 637	1 793	778	66
Pipeline construction/ testing	460	432	19	9
Pipeline failure/hits	895	724	53	118
Pipeline operations	207	80	102	25
Waste management facilities	68	42	25	1
Drilling waste management				
-Nonroutine	1	1	0	0
-Routine	199	172	10	17
Well site inspections	<u>6 078</u>	<u>4 853</u>	<u>1 162</u>	<u>63</u>
TOTAL	14 860	11 368	3 082	410

¹ For definitions of compliance and Low Risk and High Risk noncompliances, see Section 1. Details for each inspection category are found in various sections throughout this report.

The ultimate goal of enforcement is to ensure compliance with the requirements.

Table 66 summarizes the oil and gas operations that were shut down in 2006 as a direct result of EUB enforcement action (also see Figure 29).

Table 66. Facilities/operations shut down at Public Safety / Field Surveillance request, January 1 to December 31, 2006

Type	Approximate number of suspensions	Average duration of shutdown	Most common reasons for suspensions
Drilling rigs	39	3.6 hours	<ul style="list-style-type: none"> • Operational failure of BOP/accumulator system • Crew training
Service rigs	7	1.75 hours	<ul style="list-style-type: none"> • Operational failure of BOP/accumulator system
Oil production facilities	17	14 days	<ul style="list-style-type: none"> • H₂S emissions • Storage
Gas facilities	14	3 days	<ul style="list-style-type: none"> • H₂S emissions • Underground tanks not integrity tested
Pipelines	<u>100</u>	16 days	<ul style="list-style-type: none"> • Ground disturbance activities • Corrosion integrity work
Total	177		

6.1.3 Public Complaints

6.1.3.1 Response to Public Complaints

Addressing all public complaints received by field staff is very important. Our goal is to ensure prompt, effective, and lasting resolution to the problems identified, while making sure that the public and the environment are protected with minimal effects.

Responding to and effectively addressing public concerns remains a top priority of field staff. The EUB recognizes that high activity levels can affect associated public concerns.

Figure 29. Number of facilities/operations shut down at Public Safety/Field Surveillance request



When a public complaint is received that is outside of the EUB's jurisdiction, the individual with the complaint is promptly directed to the appropriate government agency so the matter can be addressed.

In 2006, there was about a 5 per cent decrease in public complaints compared to 2005. Some complaints identified more than one issue, the EUB recorded 985 issues associated with the 880 complaints (see Figure 30).

The EUB will continue to emphasize to industry the benefits and importance of proactive and effective communication with the public. In addition, we will focus on educating the public about the EUB's and industry's roles and responsibilities when development occurs.

6.1.3.2 Complaint Follow-up

Each month, a random complaint call-back survey is conducted in an effort to improve the level of satisfaction with both EUB and industry responses. Staff analyze the information to ensure that appropriate complaint response procedures are being used and any questions or concerns are addressed.

Results of the 2006 survey indicate that

- 89.7 per cent of the individuals surveyed said their concerns were satisfactorily resolved, this was the same percentage as in 2005;
- 69.7 per cent of the individuals surveyed were satisfied with the licensee's response, compared to 56 per cent in 2005; and

Figure 30. Public complaints and complaint issues



- 96.4 per cent of the individuals surveyed were satisfied with the response from the EUB, compared to 96.3 per cent in 2005.

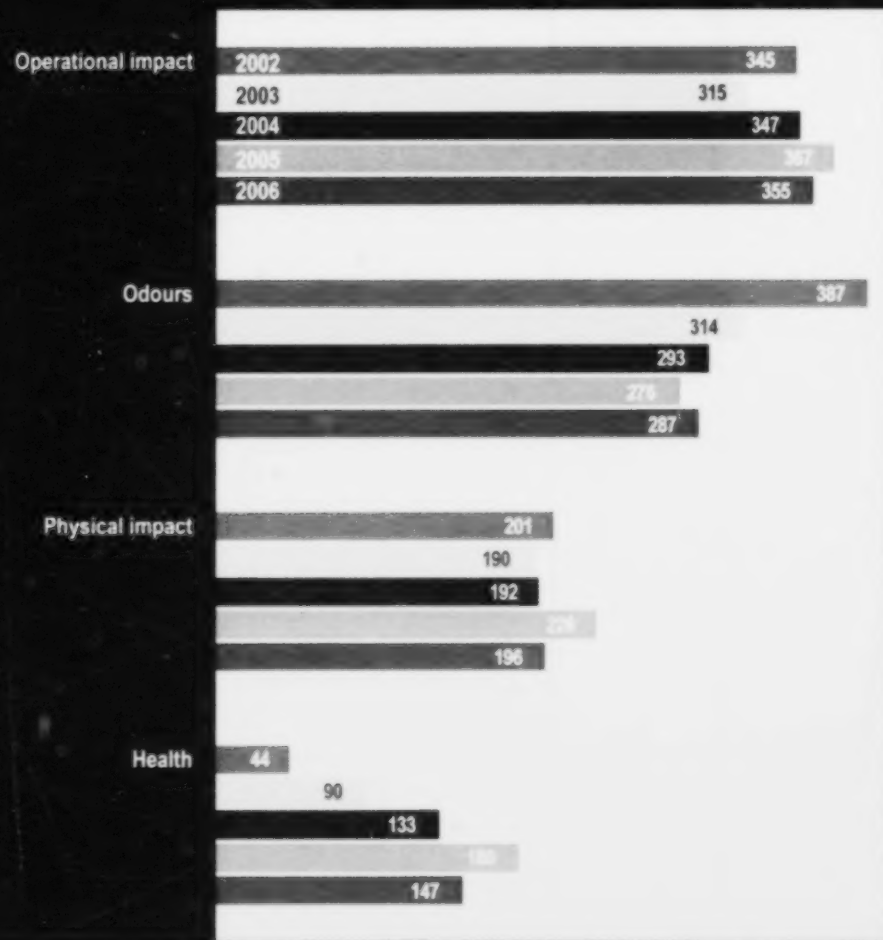
The EUB will continue with its complaint call-back survey to gauge whether we are responding effectively to the public.

6.1.3.3 Types of Public Complaints

The EUB receives complaints on a variety of issues regarding the upstream petroleum industry. Four of the most common concerns are operational impacts (noise, flare, smoke, spill), odours (H_2S , sulphur dioxide [SO_2], total hydrocarbon content), physical impact (lease management, property damage, public hazard), and health (human and livestock) (see Figure 31) issues. Odour concerns represented 29 per cent of all public complaints received in 2006.

Figure 32 indicates that well installations were the source of more than 40 per cent of public complaints. The EUB also received a number of complaints (such as of odours) regarding which an investigation of the area could not determine the source. Such complaints are categorized as "source undetermined," since they cannot be linked to a specific facility. In 2006, 23 per cent of all public complaints received could not be linked to a specific source.

Figure 31. Distribution of complaints by most common concerns



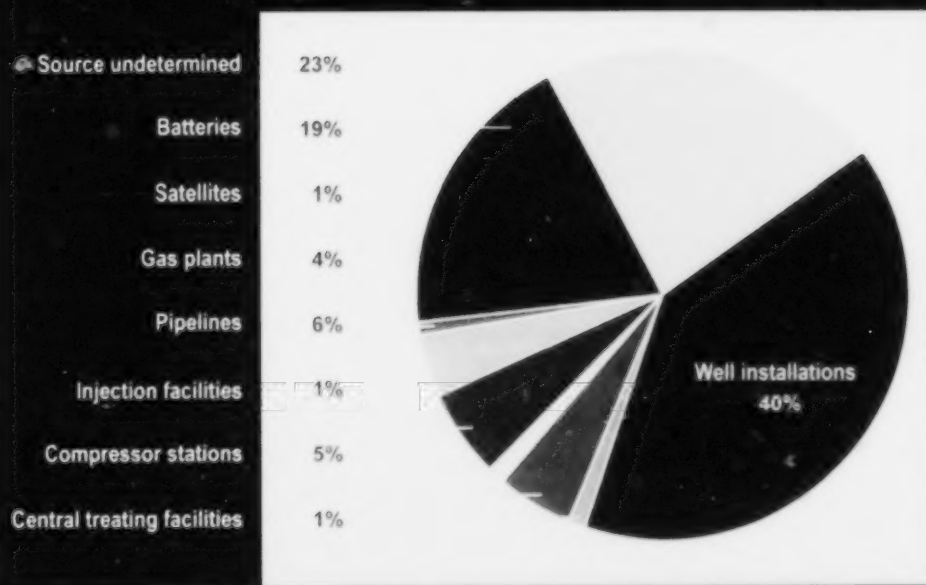
Staff follow up with industry by making presentations outlining the most common sources and causes of public complaints and describing measures to reduce the impacts. This proactive communication with industry will continue in 2007. In addition, staff will continue to hold meetings with licensees in areas of the province with sour gas production in a continuing effort to reduce transient H₂S emissions.

6.1.4 Stakeholder Involvement Activities

6.1.4.1 CAR Activities

The Community and Aboriginal Relations (CAR) section within the Public Safety Group attends a variety of activities throughout the year. CAR staff work with key stakeholders to improve the understanding and knowledge of the EUB and build new and enhance existing relationships by helping to create a dialogue among the interested parties.

Figure 32. Public complaints by source, 2006



Smaller-scale meetings discussing EUB roles and responsibilities were conducted with 125 key stakeholders in the province of Alberta, including 49 aboriginal community contacts. In addition, the EUB conducted 150 presentations to the public, industry, and government.

The CAR team grew in 2006, expanding from three community relations staff to nine. In 2006, CAR team members worked out of the Midnapore Field Centre covering southern Alberta, the Red Deer Field Centre covering central Alberta, and the St. Albert Field Centre covering northern Alberta. For the upcoming year, employees will also be located in the Grande Prairie and Drayton Valley Field Centres. Because of the growth in staff, capacity building and training was a primary goal of the team for 2006.

In 2006, efforts were made to attend provincial meetings with key stakeholders where EUB staff could meet and present to large groups of representatives across Alberta to relay key messages. As a result, follow-up with local representatives occurred in order to build relationships and address issues. This provincial focus was very successful and will continue in 2007.

The number of opportunities for the CAR team to proactively engage with stakeholders regarding the EUB is expected to increase in 2007. The focus of the team will shift from the building up of team capacities to increased contact with the public, industry, and government.

6.1.4.2 Open Houses

Staff participated in 52 open houses in 2006 to listen to concerns, answer questions, address issues, and improve the public's understanding related to proposed developments.

Open houses are another way to improve communication and relationships among the public, industry, and government.

The EUB will continue to attend open houses to ensure awareness of the EUB's roles and responsibilities when proposed development could affect the community.

6.1.4.3 Synergy Groups

Synergy groups are usually made up of public, industry, and government representatives who work collaboratively to improve communications and identify and address issues. Their size, structure, and membership depend on factors such as population, industry activity, geographical location, and sensitivity of an area. Staff attended 128 synergy group meetings in 2006 and strongly endorse this effective and cooperative approach. Table 67 lists the 57 active synergy groups located throughout the province.

For information regarding synergy-related events, see the Synergy Alberta Web site www.synergialberta.ca.

6.1.5 Emergency Planning and Assessment

The Emergency Planning and Assessment (EPA) section within the Public Safety Group is responsible for the review, approval, and assessment of emergency response plans (ERPs). The team also tracks and attends industry-held exercises and administers setback referral and relaxation requests.

The EPA section also provides technical support at EUB public hearings and other events, such as open houses and stakeholder committees, where emergency response planning and setback requirement expertise is needed.

The minimum EUB emergency preparedness and response requirements are detailed in *Directive 071: Emergency Preparedness and Response Requirements for the Petroleum Industry*. In 2006, a review of *Directive 071* was initiated and a draft revision was released. The EUB engaged the CAPP Emergency Response Committee while revising the document and later made the document available for broader stakeholder comment. A large number of comments and questions were received from stakeholders; these are currently being reviewed and considered by the EUB.

The purpose of an ERP is to ensure a quick, effective response to emergencies in order to address public safety. An ERP addresses various emergency scenarios, potential hazards to the public, and systems required for adequate response. It is the responsibility of the licensee to identify when a specific ERP is required and determine the type of plan required.

In 2006, the EPA section conducted reviews and approved the following:

- 375 drilling and or completion ERP applications,
- 15 reduced emergency planning zone applications,
- 75 production ERP applications, and
- 57 ERP supplemental applications.

In addition, 3321 routine setback referral applications were provided a standard response, and 184 referrals required more detailed reviews with specific responses due to the nature of the operations and type of the proposed developments.

Table 67. Active synergy groups in Alberta

Bonnyville Field Centre <ul style="list-style-type: none"> • Bonnyville Oil Producers Trucking Committee • Cumulative Environmental Management Association (CEMA) • Lakeland Industry & Community Association (LICA) • Marie Lake Landowners Association • Wood Buffalo Environmental Association 	Drayton Valley Field Centre <ul style="list-style-type: none"> • Alberta Utility Location and Coordination Council • Battle Lake Synergy Group • Genesee Synergy Group • West Central Air Shed Society • Yellowhead Synergy Group
Grande Prairie Field Centre <ul style="list-style-type: none"> • Chinchaga Operators Group • County Industrial Park Operators Group • Greater Kakwa Area • Hay/Zama Committee • Happy Valley Surface Rights Committee • Peace Air Shed Zone Association • Peace Arch Operators Group • Rainbow Lake Operators Group • Saddle Hills Awareness Committee • Valleyview Operators Group 	Midnapore Field Centre <ul style="list-style-type: none"> • Balzac Community Synergy Group (BALCAP) • Cochrane Pipeline Operators Committee • Indus Community / Petroleum Industry Association • Quirk Creek Gas Processing Community Committee • Southwest Alberta Sustainable Community Initiative (SASCI) • Taber Area Operators Group • Vulcan County Multi-stakeholder Group • Wheatland Surface Rights Action Group
Red Deer Field Centre <ul style="list-style-type: none"> • Butte Action Committee • Calumet Synergy Group • Central Mountain Action Guild (CMAG) • Clearwater Mutual Aid CO-OP (CMAC) • Harmattan Elkton Community Advisory Committee • Olds Community Advisory Panel • Panther Advisory Group (PAG) • Parkland Airshed Management Zone (PAMZ) • Springvale Surface Rights Association • Sunchild/Ochiese Mutual Aid Group (SOMAG) • Sundre Petroleum Operators Group (SPOG) • Tay River Advisory Committee • West Central Stakeholder Group 	St. Albert Field Centre <ul style="list-style-type: none"> • Alberta Industrial Heartland Association (AIHA) • East Parkland Liaison Committee (EPLC) • Edmonton Area Pipeline Utility Operators Committee (EAPUOC) • Fort Assiniboine and Area Multi-Stakeholder Association • Northeast Capital Industrial Association • Rimbey Multi-Stakeholder Group • St. Albert & Area Multi-Stakeholder Project (STAMP) • Transportation & Utilities Corridor Committee (TUC) • Watelet Gas Plant Area Residents Group • West Edmonton Operators Group • Wetaskiwin Synergy Initiative • Western Canada Cavern Operators Group
Medicine Hat Field Centre <ul style="list-style-type: none"> • Society of Grassland Naturalists • Shallow Gas Management Association • Medicine Hat Urban Environment and Recreation Advisory Board 	Wainwright Field Centre <ul style="list-style-type: none"> • Hardisty Terminal Complex Group

6.1.6 Major Initiative—Incident Response and Reporting Protocol

In 2006, the EUB completed an update to its *Internal Guide 26: Incident Response and Reporting Protocol (IRRP)*. The enhancements to the document will assist staff in their response to incidents.

6.2 Drilling and Servicing

Drilling and servicing operations continue to be very active in Alberta. More than 85 000 wells were drilled over the last five years. This continued level of activity has resulted in many challenges for both the EUB and industry. Both parties continue to focus on drilling and servicing of wells safely, with minimal impact on the environment and the public.

6.2.1 Well Control Occurrences

The well control data collected assist staff in monitoring industry performance and identifying when changes to regulations, inspection procedures, or operating practices are required.

Kicks,³ blowouts,⁴ and industry's response to these incidents continue to be the primary indicators of industry's drilling, servicing, and operating performance. Industry's commitment to maintaining high training standards for rig personnel in well control and crew training will help reduce the number of well control occurrences in 2007. Crew training in well control procedures will continue to be a high-priority inspection area for EUB inspection staff.

6.2.1.1 Drilling Blowouts/Kicks

In 2006, 17 blowouts occurred during the drilling of 19 438 wells, compared to 10 in 2005, when 20 545 wells were drilled (see Table 68). The blowouts occurred during the drilling of surface hole, when there are no blowout preventers installed on the well. Of these, 16 were freshwater artesian flows and one was a sweet gas flow. There was no significant impact on the public and minimal impact on the environment as a result of these occurrences.

EUB staff are carefully monitoring the situation to determine if this increase is part of a larger trend and if there are any gaps in industry performance or regulations that need to be addressed.

Table 68. Drilling well control occurrences

	2002	2003	2004	2005	2006
Wells drilled	13 193	17 108	18 572	20 545	19 438
Blowouts	6	1	4	10	17

There were 124 kicks recorded in 2006, which equates to a kick occurrence rate of about 6.4 kicks per 1000 wells drilled. This rate has remained relatively constant for the past five years.

³ Kick—Any unexpected entry of water, gas, oil, or other formation fluid into a wellbore that is under control and can be circulated out during drilling operations.

⁴ Blowout—An unintended flowing of wellbore fluids (oil, gas, water, or other substance) at surface that cannot be controlled by existing wellhead and/or blowout prevention equipment, or flowing from one formation to another formation(s) (underground blowout) that cannot be controlled by increasing the fluid density. Control can only be regained by installing additional surface equipment and/or replacing existing equipment to allow shut-in or to permit the circulation of control fluids or by drilling a relief well.

6.2.1.2 Servicing Blowouts

In 2006, there were six blowouts during servicing operations (see Table 69). Two occurred on sour wells, while the other four were on sweet wells. Three of the six blowouts were attributed to equipment failure and three to operator error. All of the blowouts were of short duration (less than one day), and environmental impact was minimal.

Table 69. Servicing well control occurrences

	2002	2003	2004	2005	2006
Blowouts	5	4	4	7	6

On February 6, 2006, the EUB issued *Directive 033: Well Servicing and Completions Operations—Interim Requirements Regarding the Potential for Explosive Mixtures and Ignition in Wells*. This directive requires operators undertaking completion or well servicing operations to document and implement practices to safely manage the potential for explosive mixtures and ignition in wellbores that result in a loss of well control (blowout). Every year since 2000 there had been at least one blowout that was the result of a wellbore explosion; with the introduction of *Directive 033*, no incidents of this nature were recorded in 2006.

6.2.1.3 Other Blowouts

Historically this category accrues the greatest number of well blowouts. In 2006, 22 blowouts occurred in this category (see Table 70). Eleven of the blowouts were sweet and 11 were sour. Four of the blowouts were attributed to third-party damage, with some type of equipment striking a well, 15 were the result of equipment failure (e.g., casing parted, wellhead equipment fatigue), 2 were caused by operator error, and one blowout was the result of inadequate well design. All blowouts were of short duration and had minimal impact on the public or the environment.

Table 70. Other well control occurrences

	2002	2003	2004	2005	2006
Blowouts	6	16	15	15	22

The EUB investigates all blowouts to identify when changes are needed to equipment, procedures, or regulations to continually improve industry standards and reduce these occurrences.

6.2.2 Drilling Activity Level and Inspections

2006 was a busy year for drilling in Alberta, with 19 438 wells drilled.⁵ This compares to the 20 545 wells drilled in 2005 (see Table 71) and represents a slight decrease of 5.4 per cent from 2005.

⁵ For the purpose of this report, drilling activity includes spuds (new well starts) and re-entries into existing wells (where a new well licence has been issued).

Table 71. Drilling inspection results and activity 2002 - 2006

	2002	2003	2004	2005	2006
Wells drilled	13 193	17 108	18 572	20 545	19 438
Drilling rigs inspected	433	400	528	469	414
% inspected	3.3	2.3	2.8	2.3	2.1
% in compliance	89.6	88.6	84.5	81.5	79.2
% not in compliance (Low and High Risk)	10.4	11.5	15.5	18.5	20.8

6.2.2.1 Inspections

In 2006, staff conducted 414 inspections on drilling operations, which found 328 operations in compliance with EUB requirements and 86 not in compliance (see Table 71). This compares to 2005, when 469 inspections were conducted, finding 382 operations in compliance and 87 not in compliance. All noncompliant items were brought into compliance.

The EUB inspects all critical sour wells at least once before drilling into the critical zone occurs. Of the 414 inspections conducted in 2006, 73 were on critical sour well drilling operations. These inspections found 62 operations in compliance with EUB requirements (84.9 per cent) and 11 not in compliance (15.1 per cent). This compares to the previous year's results, when there were 69 critical sour well drilling operation inspections completed, resulting in 64 operations found in compliance (92.8 per cent) and 5 not in compliance (7.2 per cent). Of the 11 operations not in compliance in 2006, 7 were found to be Low Risk noncompliant and 4 High Risk noncompliant.

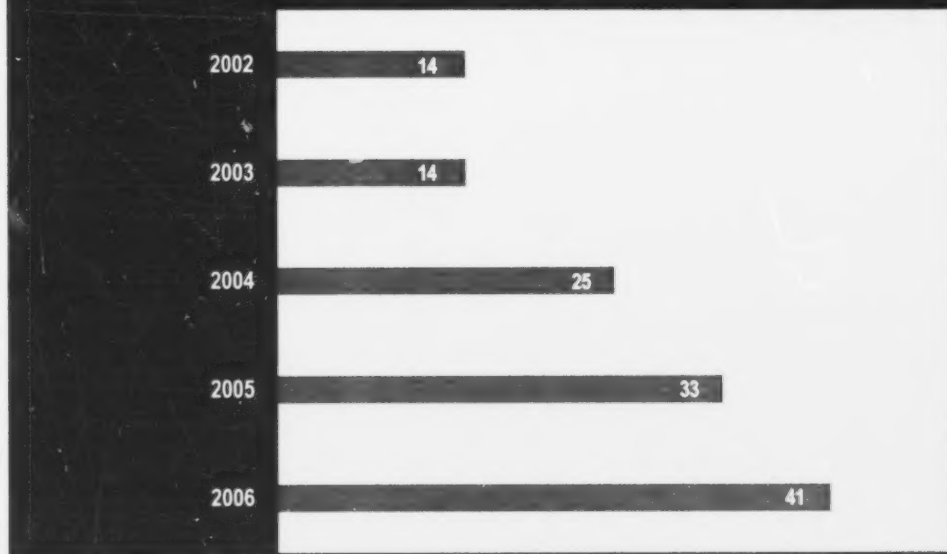
6.2.2.2 High Risk and Low Risk Noncompliant Items

In 2006, of the 86 drilling operations not in compliance, 45 were found to be Low Risk noncompliant and 41 High Risk noncompliant (this includes critical wells, noncritical wells, and investigations) (see Figure 33). Two of these High Risk noncompliances were found as the result of follow-up investigations regarding two well control incidents. (See Section 1 for definitions of compliance and of Low Risk and High Risk noncompliance.) This compares to 2005, when there were 87 operations not in compliance, of which 54 were found to be Low Risk noncompliant and 33 High Risk noncompliant.

Drilling operations were suspended at all rigs with High Risk noncompliances until the noncompliant items were corrected. The total shutdown time was about 109 hours. This compares to 2005, when drilling rig shutdowns totalled 120 hours.

In 2007, the EUB will focus on conducting operator awareness sessions to increase industry's understanding of requirements and improve compliance levels.

Figure 33. High Risk noncompliances on drilling rigs



6.2.3 Servicing Activity Level and Inspections

2006 was another busy year for well servicing activity in Alberta. This was due in part to the high number of wells drilled during the year.

6.2.3.1 Inventory, Activity Level, and Inspections

In 2006, staff conducted 280 inspections on well servicing operations, which found 251 operations in compliance and 29 not in compliance (see Table 72). This compares to 2005, when 230 inspections were conducted, finding 197 operations in compliance and 33 not in compliance. All noncompliant items were brought into compliance.

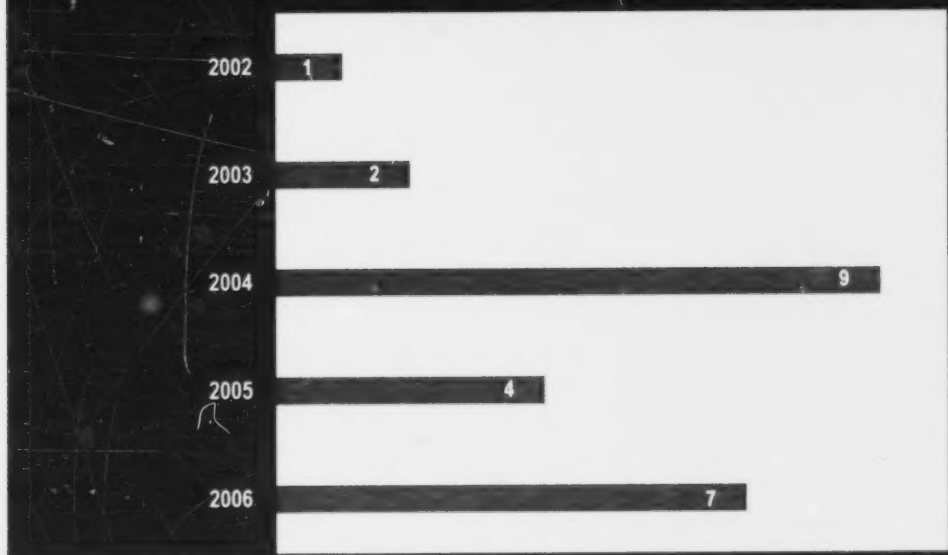
Table 72. EUB servicing inspection results 2002 - 2006

	2002	2003	2004	2005	2006
Service rigs inspected	238	223	333	230	280
% in compliance	93.7	90.5	88.0	85.7	89.6
% not in compliance (Low and High Risk)	6.3	9.5	12.0	14.3	10.4

In 2006, of the 29 operations not in compliance, 22 were found to be Low Risk noncompliant and 7 High Risk noncompliant (see Figure 34). This compares to 2005, when there were 33 operations not in compliance, of which 29 were Low Risk noncompliant and 4 were High Risk noncompliant.

Servicing operations were suspended at all service rigs with High Risk noncompliances until the noncompliant items were corrected. In 2006, the total shutdown time was about 23 hours. This compares to 2005, when service rig shutdowns totalled 7 hours.

Figure 34. High Risk noncompliances on service rigs



6.2.4 Public Complaints

In 2006, staff investigated 78 public complaints related to the drilling and servicing of wells. The cause of the complaints included such issues as noise, odours, property damage, flaring, and dust created by drilling and service rig traffic. This compares to 2005, when 96 public complaints were received about similar issues.

The EUB continues to investigate all public complaints in Alberta to ensure that appropriate action is taken.

6.3 Oil Facilities

When conducting inspections staff focus on identifying potential hazards that may affect the public or the environment. In addition, a significant amount of time is spent conducting licensee awareness sessions to increase industry's understanding of EUB requirements and the consequences for noncompliance. During 2006, these sessions were conducted on both an individual and a group licensee basis and included a review of EUB requirements.

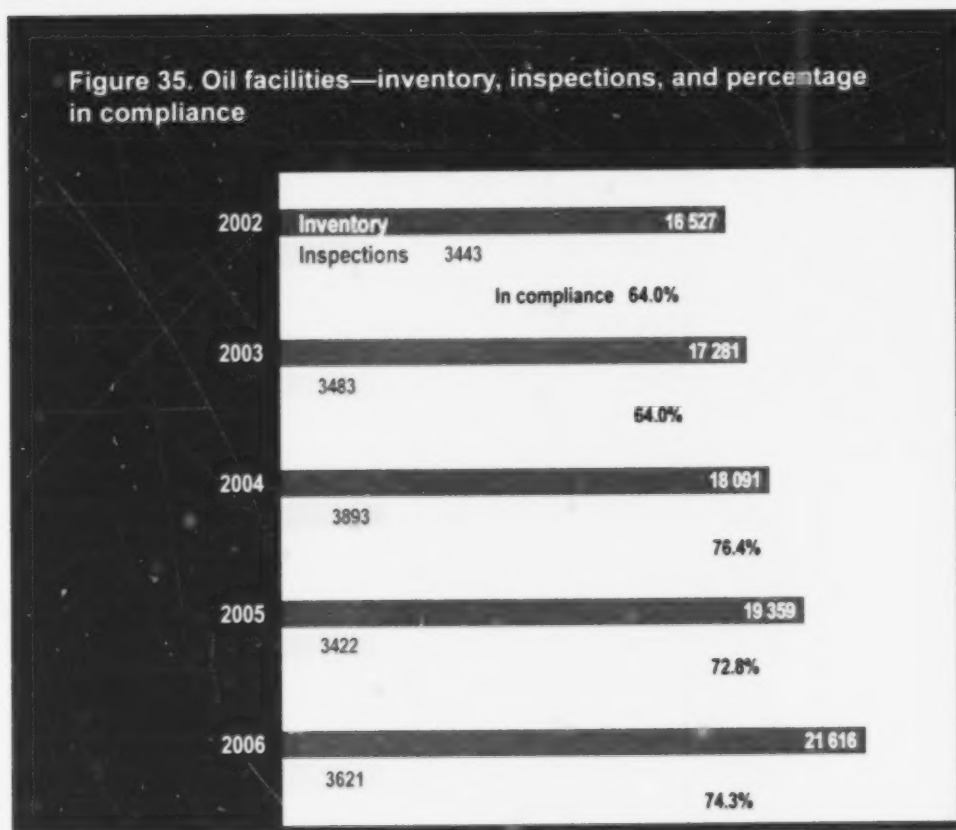
6.3.1 Inventory, Activity Level, and Inspections

The inventory of conventional oil and crude bitumen facilities continues to increase from previous years. As of the end of 2006 it was

- sweet multiwell batteries 2 055
- sour multiwell batteries 976
- sweet single-well batteries 11 124

• sour single-well batteries	1 998
• sweet satellites	2 199
• sour satellites	2 338
• sweet injection/disposal facilities	829
• sour injection/disposal facilities	69
• sweet custom treating facilities	26
• sour custom treating facilities	2

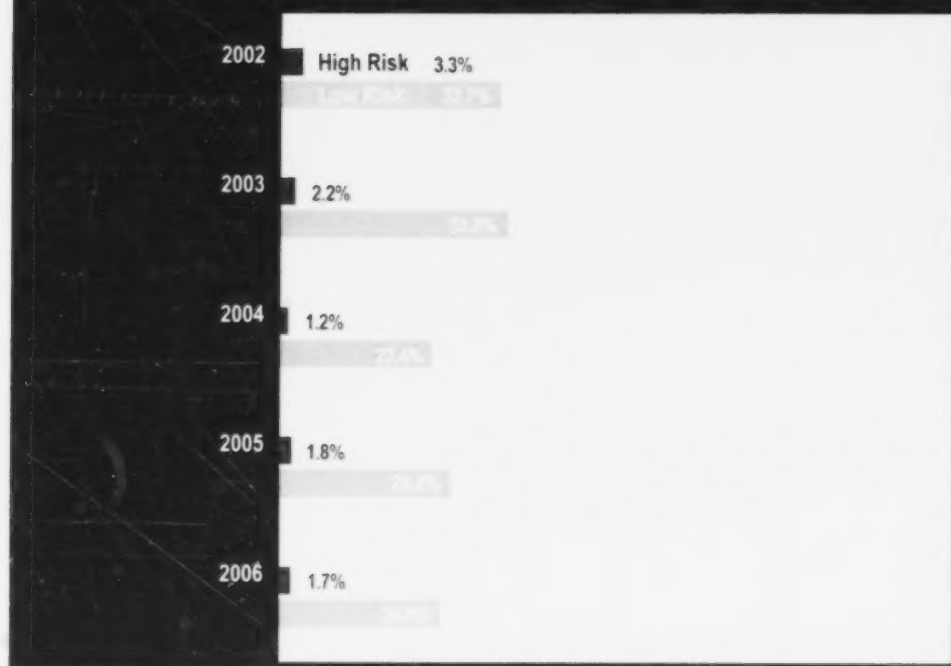
Figure 35 shows the inventory of oil facilities, the number of inspections, and the percentage of inspections that found facilities in compliance. (See Section 1 for definitions of compliance and of Low Risk and High Risk noncompliances.) Of the 3621 inspections conducted in 2006, 74.3 per cent of the facilities were found to be in compliance. Of the 25.7 per cent of facilities found not in compliance, 24.0 per cent were found to be Low Risk noncompliant and 1.7 per cent High Risk noncompliant.



Staff conducted 3621 inspections in 2006, of which 63 were found to be High Risk noncompliant. There were 17 oil production facilities suspended in 2006 (see Table 66). Appropriate enforcement action was taken on all facilities to bring them into compliance.

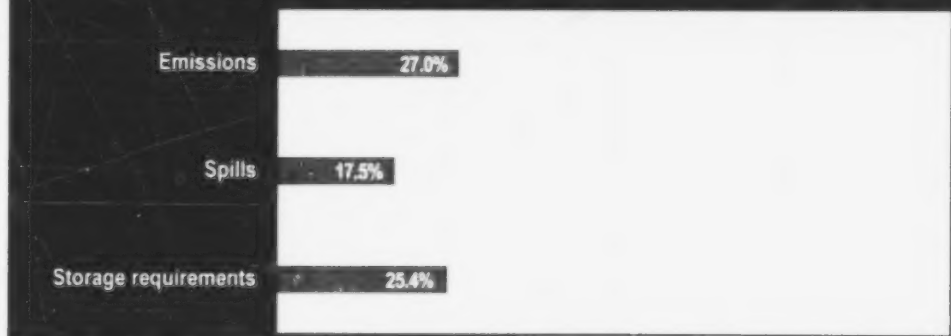
Figure 36 shows the percentage of facility inspections with Low and High Risk noncompliances.

Figure 36. Oil facilities—High and Low Risk noncompliant items by percentage of total inspections



The most common High Risk noncompliant items found in 2006 are shown in Figure 37.

Figure 37. Oil facilities—most common High Risk noncompliant items, 2006



In 2006, of the 3621 inspections completed, 866 (24.0 per cent) were found to be Low Risk noncompliant. This compares with 868 Low Risk noncompliance findings (25.4 per cent) out of 3422 inspections in 2005. The most common Low Risk noncompliant items found in 2006 are shown in Figure 38.

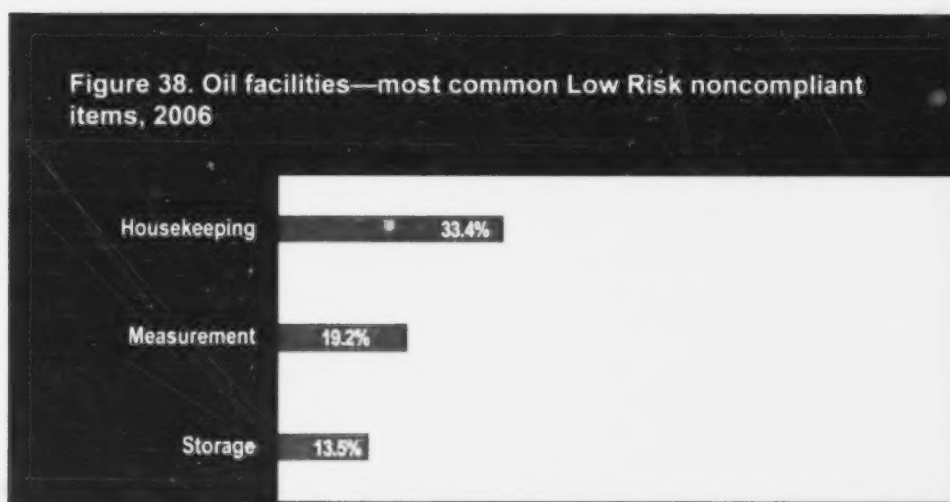
All noncompliant items were dealt with in accordance with *Directive 019*.

The EUB continues to meet with licensees to discuss inspection results, focusing on finding solutions to improve compliance.

The EUB conducts inspections on sour facilities with site-specific emergency response plans and randomly communicates with residents to share inspection results and ensure awareness of the site-specific emergency plans.

6.3.2 Public Complaints

In 2006, there were 134 public complaints related to oil facilities. All complaints were investigated and appropriate enforcement was applied where required.



The EUB requires licensees to investigate all sources of emissions and install equipment or use other technology to reduce emissions. In addition, licensees are required to closely monitor operations and proactively communicate with area residents.

The public complaint history of each oil facility is reviewed. If there has been a history of public complaints, staff take additional action as necessary to achieve lasting improvement.

In 2006, staff identified 19 oil facilities as having multiple complaints. These complaints were related to odours, flaring, smoke, noise, and spills. Where necessary, repairs and facility upgrades were made by the licensees to remedy the problems. This compares to 12 oil facilities having multiple complaints in 2005. As shown in Figure 39, over half of the public complaints related to oil facilities in 2006 were due to odours and smoke/flaring.

Staff held a number of group licensee awareness sessions throughout the province in 2006. The objective of such sessions is to educate industry on EUB requirements and to encourage the development of best operating practices to help reduce the impact on the public and environment. These sessions will continue in 2007.

Figure 39. Oil facilities—odour and smoke/flaring complaints



6.3.3 Licensees with Persistent Low Risk Noncompliances

The EUB identified three licensees that had persistent Low Risk noncompliances found in more than 43 per cent of their company's total inspections in 2005.⁶ Each licensee was requested to review its operating practices and develop an action plan to address the persistent high rate of Low Risk noncompliances.

The three licensees had a combined total of 80 initial inspections in 2005. Low Risk noncompliant items were found at 38 oil facilities, resulting in a 47.5 per cent noncompliance rate. A review of inspections conducted on these licensees will be initiated to ensure that their compliance rates have improved. If they have not improved, further corrective actions will be taken.

Measures taken by these licensees to improve their compliance rates included

- meeting with EUB staff to gain a better understanding of requirements and concerns,
- meeting or having training sessions as required with licensee personnel and contract operators to ensure that they are aware of EUB requirements, and
- implementing internal inspection and audit programs to identify noncompliant items.

The EUB will identify and work with licensees having a high rate of persistent Low Risk noncompliance related to inspections conducted in 2006.

⁶ Note that since *Directive 019* only became effective on January 1, 2006, findings for 2005 reported here are based on *Informational Letter (IL) 99-4*, which was in effect through 2005.

6.4 Gas Facilities

In 2006, the new enforcement policy detailed in *Directive 019* came into effect. The risk associated with each possible noncompliance item in *Directive 064: Requirements and Procedures for Facilities* was reassessed with the participation of various members of industry. The gas compliance category defined how persistent noncompliance would be determined and guidance was provided to inspectors on how to apply enforcement action when noncompliant events were identified.

6.4.1 Inventory, Activity Level, and Inspections

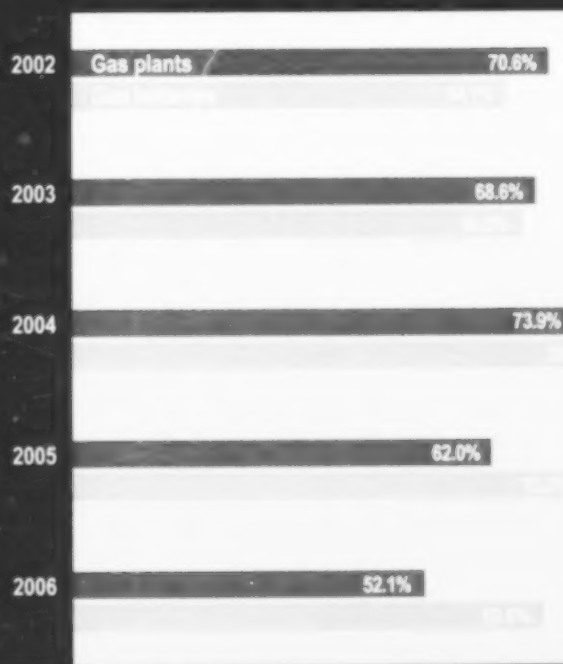
The inventory of gas facilities for 2006 was

- gas batteries 12 243
- sweet gas plants 573
- sour gas plants 244
- compressor stations 4726

In 2006, 2637 gas facility inspections were conducted, including 20 detailed operational inspections. This was a decrease of 30 per cent compared to 2005, when 3791 inspections were conducted.

As shown in Figure 40, in 2006 the compliance rate found by inspections of gas plants and gas batteries decreased. (See Section 1 for definitions of compliance and of Low Risk and High Risk noncompliance.)

Figure 40. Gas facilities—compliance rate



Low Risk noncompliances increased in 2006 to 29.5 per cent, compared to 26.1 per cent in 2005. The number of High Risk noncompliances found at facilities increased during 2006 to 2.5 per cent, compared to 0.9 per cent in 2005 (see Figure 41).

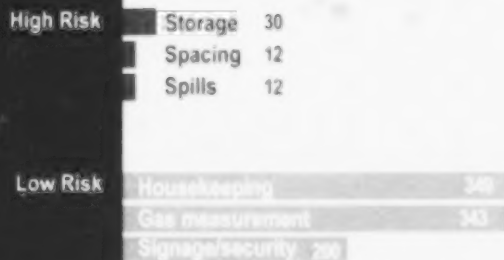
Figure 41. Gas facilities—percentage of inspections finding High Risk noncompliances



All noncompliant items were addressed in accordance with *Directive 019*. Senior EUB personnel will continue to intervene and meet with licensees who have been identified as persistently noncompliant, in order to identify the root causes and ensure that an approved action plan is implemented that improves compliance.

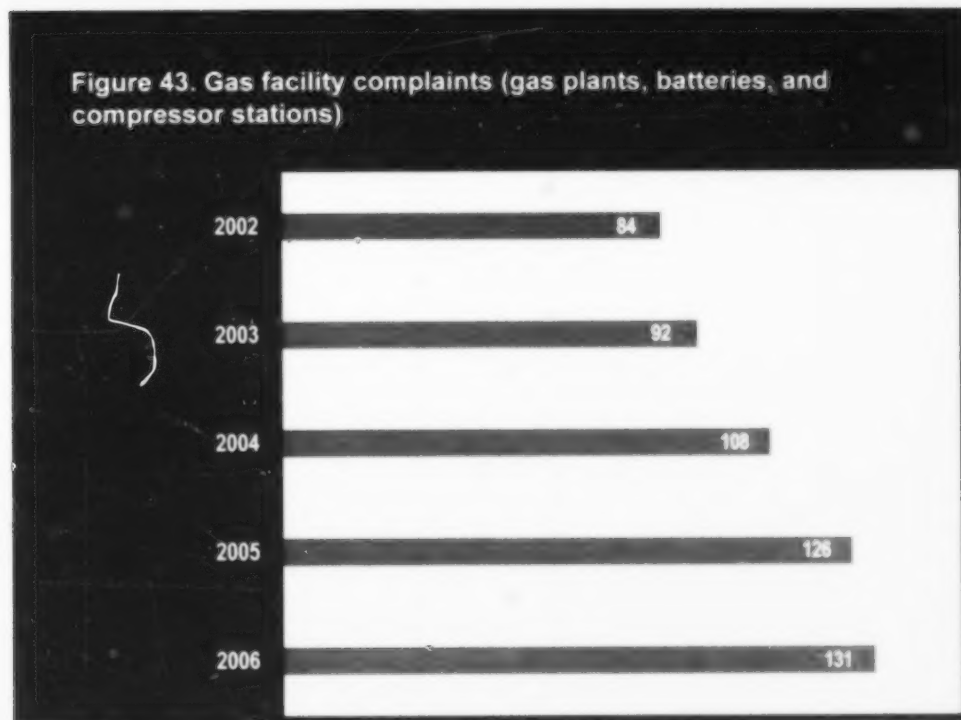
Figure 42 shows the most common Low and High Risk noncompliant items in 2006.

Figure 42. Gas facilities—most common High and Low Risk noncompliant items, 2006



6.4.2 Public Complaints

The number of public complaints regarding gas facilities increased by 4 per cent to 131 in 2006 from 126 in 2005 (see Figure 43).



In 2006, the most common concerns at gas facilities were

- operational impacts (e.g., noise, flare, nuisance),
- odours (e.g., hydrocarbon, H₂S), and
- physical impacts (e.g., housekeeping, weeds, erosion, contamination).

The EUB investigated all complaints received and found that 53.8 per cent of the gas facilities inspected were in compliance.

Staff identified 8 gas facilities that had multiple complaints resulting in findings of noncompliance. These were related to odours, flaring, smoke, noise, and lease management. Repairs and facility upgrades were made by the licensees to remedy the problems. This compares to 12 gas facilities having multiple complaints in 2005.

Staff held a number of group licensee awareness sessions throughout the province. The objective of these sessions is to educate industry on EUB requirements and to encourage the development of best operating practices to help reduce the impact on the public and environment. These sessions will continue in 2007.

6.4.3 Licensees with Persistent Low Risk Noncompliances

The EUB identified three licensees that had persistent Low Risk noncompliances found in more than 44 per cent of their company's total inspections in 2005.⁷ Each licensee was requested to review its operating practices and develop an action plan to address the persistent high rate of Low Risk noncompliances.

A follow-up review was conducted, and the rate of Low Risk noncompliances improved for one of the licensees, decreasing from 55 per cent to 10.5 per cent. The other two licensee reviews conducted did not result in any improvements. Their Low Risk noncompliances increased from 44 to 50 per cent and from 56 to 57 per cent.

Measures taken by these licensees to improve their compliance rate included

- meeting with EUB staff to gain a better understanding of EUB requirements and concerns,
- meeting or having training sessions as required with licensee personnel and contract operators to ensure that they are aware of EUB requirements, and
- implementing internal inspection and audit programs to identify noncompliant items.

The EUB will identify and work with licensees having a high rate of persistent Low Risk noncompliances related to inspections conducted in 2006.

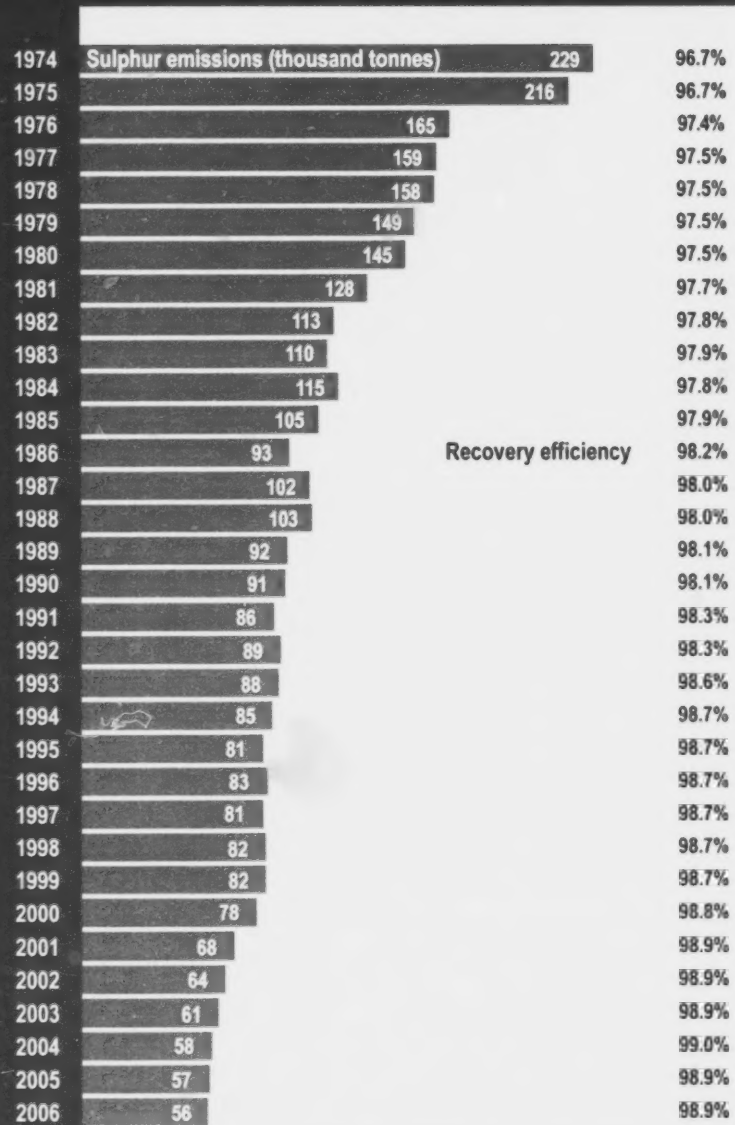
6.4.4 Sulphur Recovery

Sulphur recovery efficiencies at gas plants recovering saleable sulphur is at 98.9 per cent. Overall, sulphur emissions have decreased by 28 per cent since 2000 (from 78 000 to 56 000 tonnes of sulphur emissions). This decrease is due to the declining sulphur inlets at these plants and the EUB/Alberta Environment *Interim Directive (ID) 2001-3: Sulphur Recovery Guidelines for the Province of Alberta*, which has resulted in improved performance (see Figure 44).

ID 2001-3 details the requirements when a plant has to be relicensed to meet the new sulphur recovery standards. In the last six years, a number of sour gas plants have been relicensed to meet the new standards. For some of these plants, it has meant the addition of significant new equipment. Details of these changes are reported in the EUB's annual *ST101: Sulphur Recovery and Sulphur Emissions at Alberta Sour Gas Plants*. *ST101* allows licensees of plants with sulphur recovery to take immediate advantage of performance improvements to delay the full relicensing requirements.

⁷ Note that since *Directive 019* only became effective on January 1, 2006, findings for 2005 reported here are based on *Informational Letter (IL) 99-4: EUB Enforcement Process, Generic Enforcement Ladder, and Field Surveillance Ladder*, which was in effect through 2005.

Figure 44. Efficiency versus emissions of sulphur recovery plants



6.5 Pipeline

Licensees operating pipelines in Alberta must follow EUB regulations and industry standards. EUB staff conduct inspections to monitor compliance and enforcement measures are taken to address noncompliances. (See Section 1 for definitions of compliance and of Low Risk and High Risk noncompliance.)

6.5.1 Key Inspection Areas

Using *Directive 066: Requirements and Procedures for Pipelines*, staff focus on the following key inspection areas:

- **Pipeline failures**—The Alberta *Pipeline Act* requires licensees of pipelines to report any pipeline failures to the EUB regardless of the cause, magnitude, or consequence. EUB staff review the cause of the failure to ensure that mitigative measures are taken to prevent similar occurrences in the future.
- **Construction and pressure testing**—Staff conduct inspections on new pipeline installations to ensure compliance with the requirements of the *Pipeline Act* and *Regulation* and Canadian Standards Association (CSA) standards.
- **Operations inspections**—Staff conduct inspections on existing pipeline systems to ensure that licensees conduct operational and maintenance activities in accordance with the requirements.
- **Contact damage**—Staff inspect sites where pipeline contact damage has occurred. Awareness seminars are held for licensees and contractors to educate them on requirements that must be met prior to commencing ground disturbance activities to enhance worker and public safety and mitigate environmental impacts.

The length and type of pipelines in Alberta under EUB jurisdiction are listed in Table 73.

Table 73. Length of pipelines by type in Alberta under EUB jurisdiction (km)*

Year	Crude oil	Natural gas	Sour gas	Water	Multiphase	Others	Total
Total prior to 2002	16 171	186 280	17 106	19 117	45 684	25 114	309 472
2002	300	8 064	540	380	962	553	10 799
2003	273	11 715	695	546	1 112	706	15 047
2004	402	13 010	873	845	2 017	882	18 029
2005	116	14 255	880	320	1 221	1 901	18 693
2006	880	15 314	922	545	1 304	1 227	20 192
Total	18 142	248 638	21 016	21 753	52 300	30 383	392 232

*Numbers were calculated by adding all statuses (operating, permitted, abandoned, discontinued, and suspended) for all types of pipelines as of December 31 of each year.

6.5.2 Pipeline Failures/Hits

A pipeline failure is defined as the failure of the pipeline to contain the substance being transported. For statistical purposes, pipeline hits are included in the pipeline failure numbers.

- **Hit** — striking a buried pipeline during a ground disturbance activity resulting in the pipeline or pipeline coating being damaged; a release of product does not necessarily result.
- **Leak** — an opening, crack, or hole in a pipeline causing some product to be released, but not immediately impairing the operation of the pipeline.
- **Rupture** — the instantaneous tearing or fracturing of the pipeline material, immediately impairing the operation of the pipeline.

The EUB's release reporting and inspection priority system applies to all pipeline releases (see Section 6.6.1.1).

If a pipeline failure/hit occurs, the licensee or operating company is required to inform the local EUB Field Centre. Staff record the information into a database, including date of occurrence, geographic location, pipeline specifications, operating conditions, environmental release information, cause, and priority rating of the release.

There were 16 ruptures in 2006, which is slightly higher than the 13 ruptures in 2005. Table 74 shows the various causes of failures and corresponding inspections during 2006.

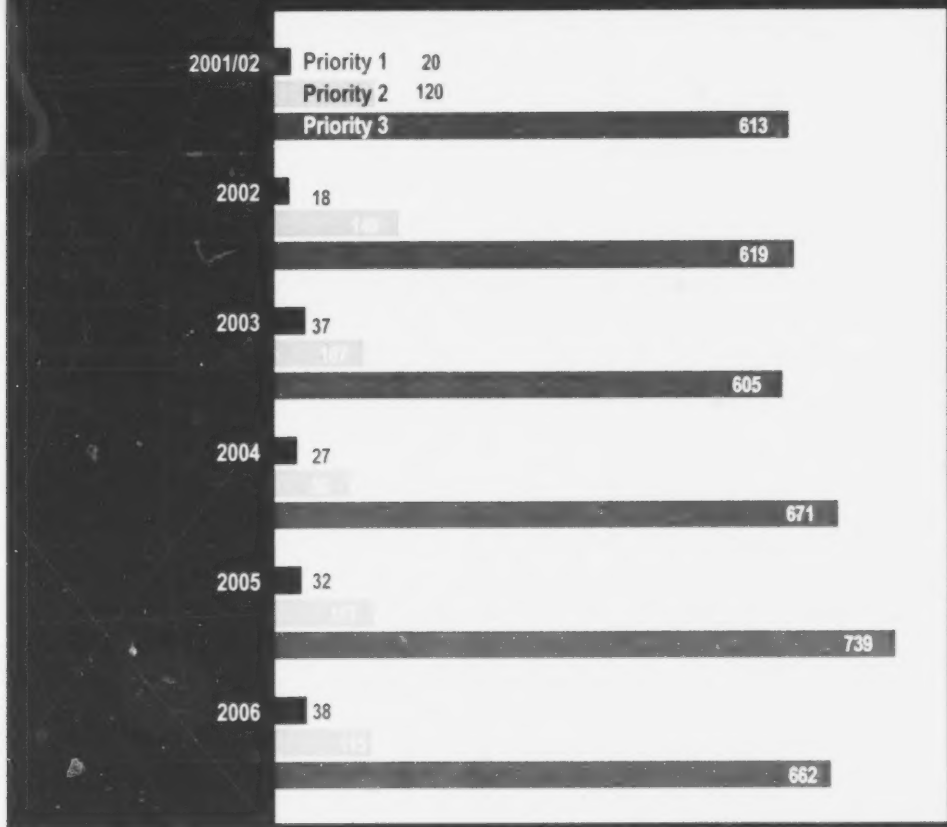
Table 74. Failures/hits reported from January 1 to December 31, 2006*

Cause	Incidents		Leaks		Ruptures	
	#	%	#	Inspections	#	Inspections
Construction damage	68	7.6	65	41	3	2
Damage by others (hits with release)	26	3.0	19	15	7	7
Damage by others (hits, no release)	80	8.9	0	55	0	0
Earth movement	13	1.4	13	6	0	0
External corrosion	110	12.3	107	51	3	2
Fittings/valve failure	53	6.0	53	18	0	0
Girth weld	14	1.6	14	6	0	0
Installation failure	5	.5	5	3	0	0
Internal corrosion	343	38.3	343	163	0	0
Joint failure	13	1.4	13	4	0	0
Mechanical damage	6	.7	6	5	0	0
Mechanical joint	18	2.0	17	1	1	1
Overpressure	17	1.9	17	12	0	0
Pipe body failure	28	3.1	27	12	1	2
Seam failure	6	0.7	6	4	0	0
Weld failure	13	1.4	13	6	0	0
Licensee error	24	2.7	24	15	0	0
Miscellaneous	31	3.5	31	14	0	0
Unknown	<u>27</u>	<u>3.0</u>	<u>26</u>	<u>6</u>	<u>1</u>	<u>0</u>
TOTAL	895	100	802	437	16	14
% OF INCIDENTS		100	89.3		1.8	

* Statistics include 84 pressure test failures.

Figure 45 shows the priority ratings for pipeline releases compared to previous years. Leak detection systems, training and awareness programs, automated shut-in equipment, and pipeline patrols are effective in minimizing the effects of releases.

Figure 45. Priority ratings for pipeline releases



The following summarizes the pipeline releases/hits from January 1 to December 31, 2006:

Ruptures	1.8%	Priority 1 releases	4.2%
Leaks	89.3%	Priority 2 releases	12.9%
Hits, no release	8.9%	Priority 3 releases	74.0%
	100%	No release	8.9%
			100%

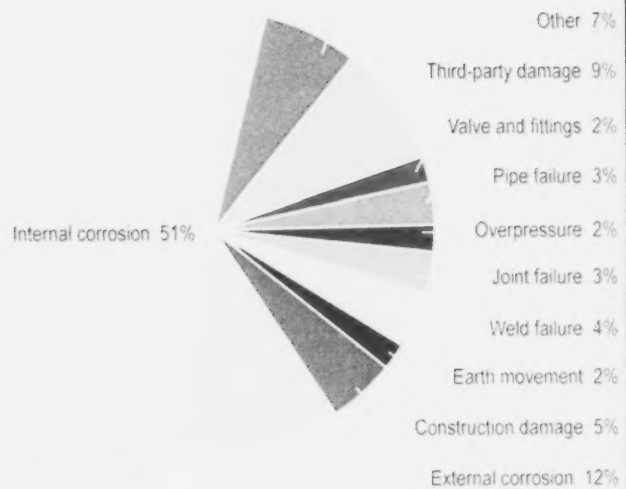
When a failure occurs, the licensee must confirm the integrity of the entire pipeline segment, perform an engineering assessment on the entire pipeline system that it operates in, and outline measures to prevent further occurrences. When the cause of the failure cannot be identified, the licensee is required to perform a failure analysis.

All pipeline failures are inspected or an investigation is conducted into the failure mechanism. In 2006, staff conducted 456 inspections and investigated 439 incidents. The total inspections and investigations include the 106 contact damage incidents that occurred. Inspections found 534 operations in compliance with EUB requirements, while identifying 53 Low Risk noncompliances and 118 High Risk noncompliances. All noncompliant items were brought into compliance.

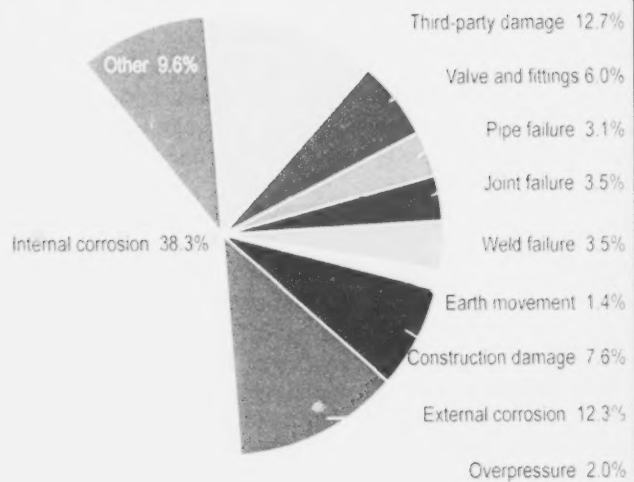
Although corrosion continues to be the main cause of pipeline failures, there are fewer internal corrosion failures compared to historical data (see Figure 46).

Figure 46. Pipeline failures by cause

Historic
1980 - December 31,
2006



**January 1 -
December 31, 2006**



External corrosion remained relatively constant in 2006 compared to historical data. Reducing failure incidents in older pipeline coating systems continues to present challenges, such as the shielding of cathodic protection, disbondment, temperature variation, and environmental stresses.

Figure 47 shows that the top three product lines that are failing are multiphase, natural gas, and water.

Figure 48 shows that the majority of failures are occurring in smaller-diameter gathering lines, primarily the 60.3 millimetre (mm), 88.9 mm, and 114.3 mm systems.

Figure 49 shows a substantial improvement over the 1988 benchmark of 5 failures/1000 kilometres (km). In 2006, the rate was 2.2/1000 km.

6.5.3 Construction and Pressure Testing Inspections

Field staff conducted 460 pipeline construction and pressure test inspections in 2006, of which 432 were found to be in compliance with EUB requirements, 19 had Low Risk noncompliant items, and 9 had High Risk noncompliant items. All noncompliant items were brought into compliance. This compares to 446 pipeline construction and pressure test inspections conducted in 2005, of which 411 were found to be in compliance with EUB requirements, 19 had Low Risk noncompliant items, and 16 had High Risk noncompliant items.

6.5.4 Operations Inspections

An operations inspection involves a field inspection of the pipeline system and a review of a licensee's maintenance documentation. In 2006, staff conducted operations inspections on 53 licensees, which included the inspection of 207 licensed pipeline systems. The inspections found 80 operations in compliance with EUB requirements, 102 with Low Risk noncompliant items, and 25 with High Risk noncompliant items. All noncompliant items were brought into compliance. This compares to 68 licensees with a total of 208 licensed pipeline systems inspected in 2005, of which 130 were in compliance with EUB requirements, 78 had Low Risk noncompliant items, and 27 had High Risk noncompliant items.

6.5.5 Contact Damage

There were 106 contact damage incidents in 2006 (see Figure 50), of which 4 had Low Risk noncompliant items and 56 had High Risk noncompliant items. All noncompliant items were addressed. Following a review, the remaining 46 incidents did not warrant enforcement action. This compares to 128 incidents the previous year, of which 11 had Low Risk noncompliant items and 32 had High Risk noncompliant items.

In 2006, field staff conducted 52 seminars on ground disturbance for industry and the public.

In 2007, staff will continue to focus on pipeline failures, construction and pressure testing, operations inspections, and contact damage. More attention will also be given to fibre glass and composite pipelines to ensure that requirements are met.

Figure 47. Historical pipeline failures by product being transported

Number of incidents

Multiphase

Water

Natural gas

Crude

Sour gas

All other

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Multiphase	280	329	310	303	308	323	352	330	327	337
Water	194	196	162	159	174	193	157	183	179	170
Natural gas	230	241	385	420	255	222	232	262	321	317
Crude	20	28	31	29	26	14	17	30	19	28
Sour gas	17	24	31	35	41	23	29	38	22	33
All other	9	4	3	6	4	10	9	4	20	10



Figure 48: Number of failures by pipeline size

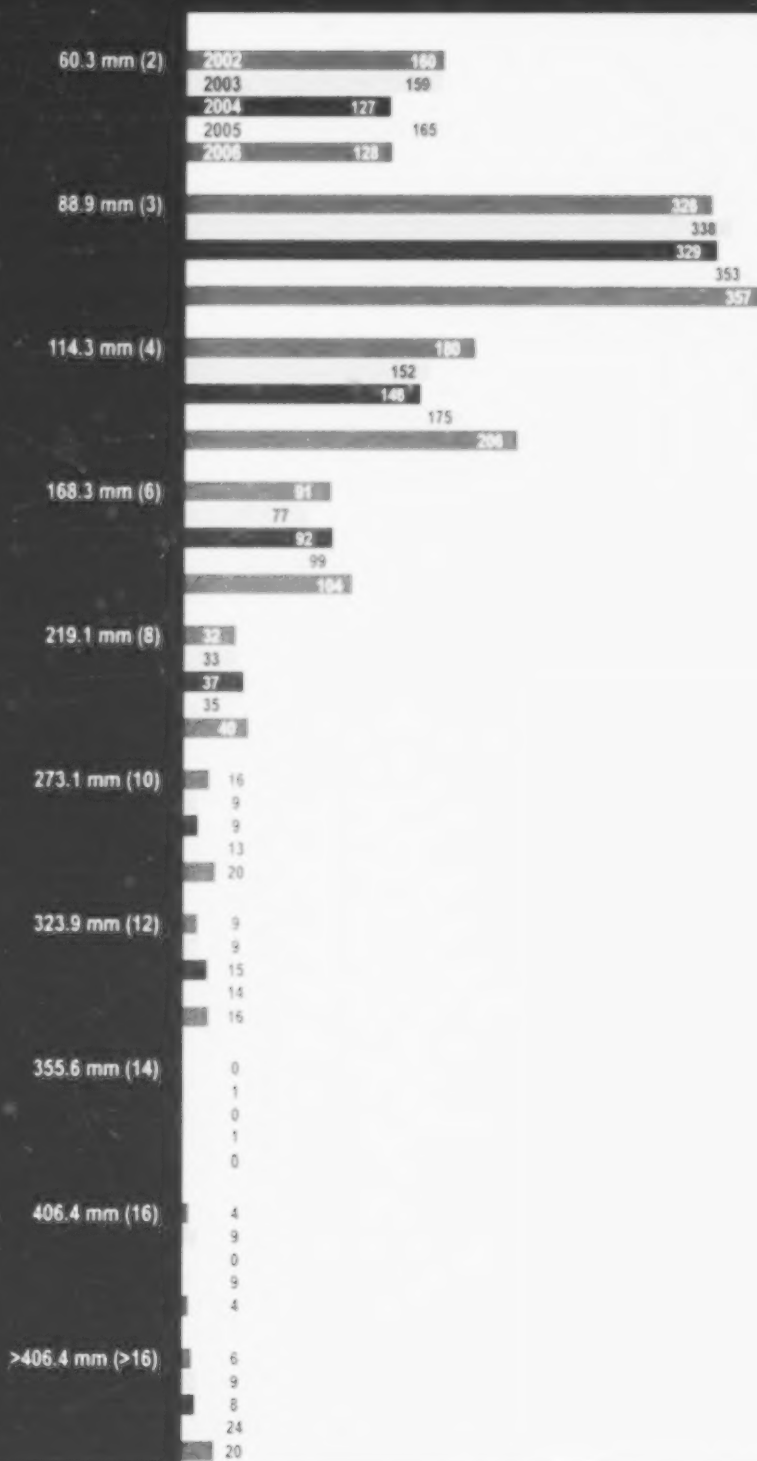


Figure 49. Failures compared to total pipeline length

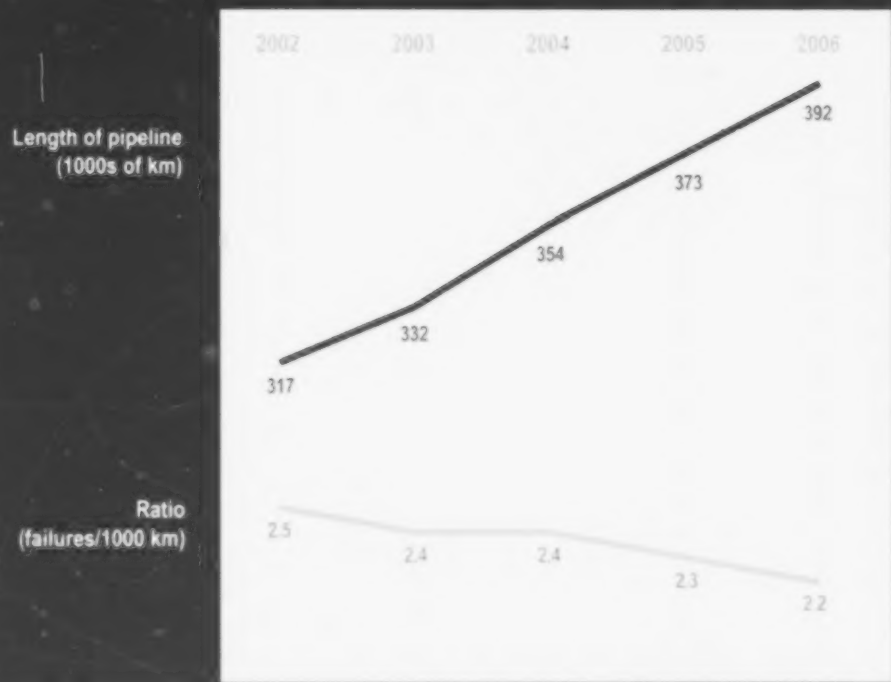


Figure 50. Pipeline contact damage



The following requirements to the *Pipeline Regulation* came into effect on May 31, 2006:

- All licensed pipelines must register with Alberta One-Call.
- Anyone proposing to start ground disturbance within the controlled area of a pipeline must contact Alberta One-Call prior to conducting the ground disturbance to advise the licensee of the work and to request the licensee to mark the location of the pipeline.
- The licensee's authorized on-site supervisor must complete a certified ground disturbance training course.

Field staff will continue to enforce compliance with requirements and monitor statistics for improvement in industry performance.

6.5.6 Public Complaints Associated with Pipeline Operations

There were 58 complaints associated with pipeline operations in 2006, compared to 72 complaints in 2005. The complaints received were mainly related to odours, spills from pipeline failures, and lease management during construction. All complaints were followed up on by field staff.

6.6 Environment

One of the EUB's primary responsibilities is minimizing the impact of oil and gas operations on the public and the environment. Field staff conduct inspections on oil and saltwater spills, drilling waste disposal operations, waste management facilities, drilling and servicing rigs, pipelines, and production facilities. Staff also respond to public complaints and work with industry and other government agencies to minimize the environmental impacts.

6.6.1 Spills and Releases

6.6.1.1 Spill and Release Statistics and Inspections

To minimize the number of spills and gas releases and their effects on the environment, licensees must ensure that

- their staff are provided with appropriate training,
- the source of a release is stopped,
- the spill is contained,
- the free fluids and solids are recovered, and
- the spill site is remediated in accordance with Alberta Environment (AENV) standards and guidelines.

Releases are prioritized to allow for an appropriate, timely, and effective response by EUB staff. The priority of a spill or release is calculated by the following criteria:

- on-lease or off-lease spill,
- area sensitivity,
- whether release is sweet or contains H₂S,

- type of area affected,
- environment affected,
- wildlife/livestock affected, and
- affected public.

Priority 1 releases are those that pose the most serious environmental and public impact. Field staff make every attempt to immediately respond to the location; however, when that is not possible, all attempts are made to have another regulatory agency respond for the initial assessment. In these cases, EUB staff conduct an inspection as soon as possible.

Priority 2 releases are those where a significant volume has been released or the impact on the environment is a concern. These sites are generally inspected within 7 working days.

Priority 3 releases are low-volume spills on site. Historically, about 25 per cent of priority 3 spills are inspected to ensure that they are satisfactorily addressed. In 2006, 23 per cent of priority 3 spills were inspected.

Each spill is investigated to determine the cause and to identify any preventive measures that may be required of the licensee to minimize the chances of a recurrence.

As shown in Figure 51, 1516 spills were reported to the EUB in 2006, an increase from 1429 in 2005. Of the 1516 spills,

- 84 were priority 1 (5.5 per cent),
- 291 were priority 2 (19.2 per cent), and
- 1141 were priority 3 (75.3 per cent).

It is important to note that more than 75 per cent of all spills were low volume and were contained on lease. Inspections were conducted on the clean-up of 740 spills, of which 587 were in compliance with EUB regulations, 68 had Low Risk noncompliances, and 85 had High Risk noncompliances. (See Section 1 for definitions of compliance and of Low Risk and High Risk noncompliances.)

6.6.1.2 Main Causes of Spills

Figure 52 shows the most significant sources and causes of spills. Equipment failure and pipeline corrosion were the leading causes of liquid spills in 2006, consistent with previous years.

Figure 53 shows the volume of produced water and liquid hydrocarbon spills over a five-year period. The spill volumes of produced water and liquid hydrocarbon in 2006 were 27 287 m³ and 9732 m³ respectively. The increased spill volume was as a result of equipment failures and fewer than 10 pipeline failures where significant volumes were released. All of these releases were contained. The area affected and environmental impact were kept to a minimum in all but one spill.

Figure 51. Number of spills from upstream oil and gas sources

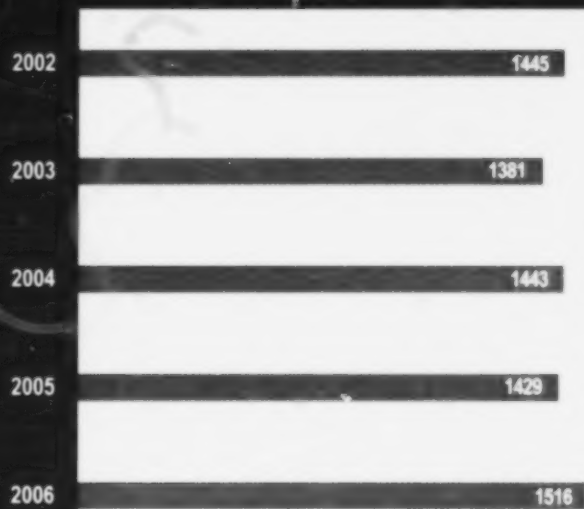


Figure 52. Spills by source and failure type, 2006

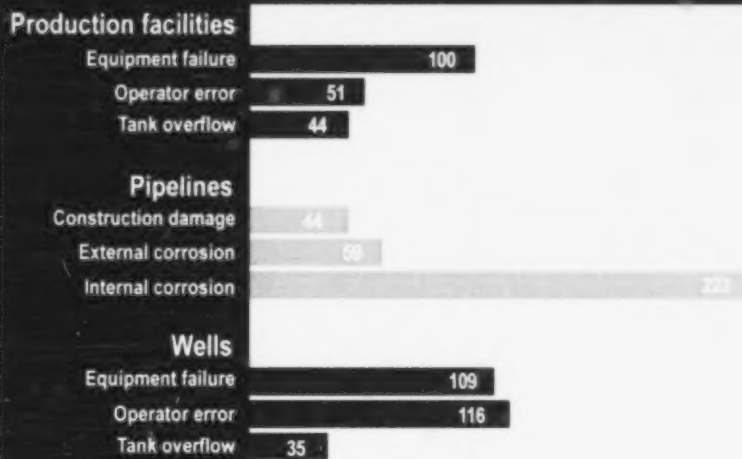
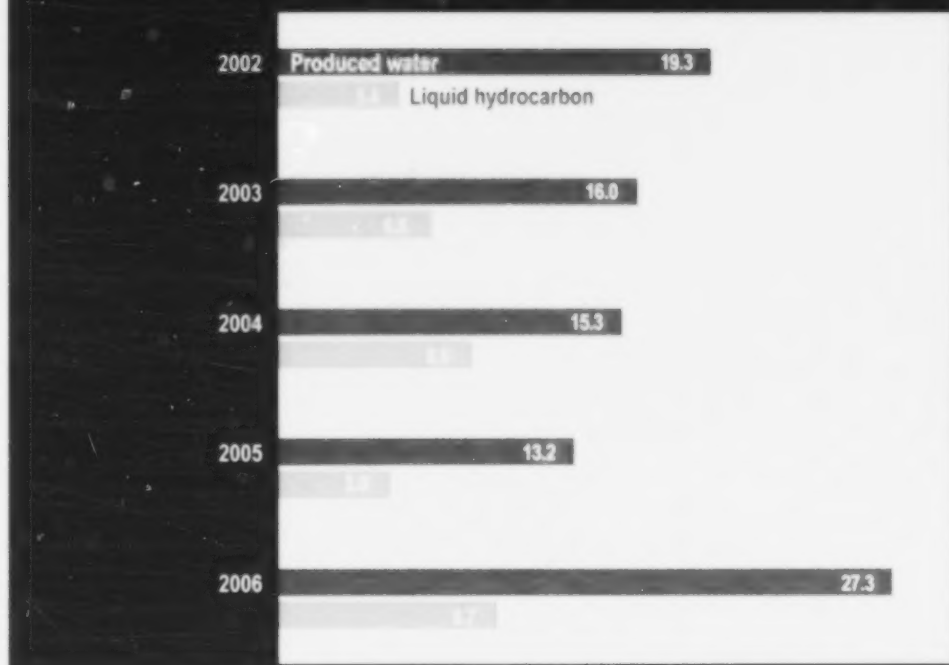


Figure 53. Reported volumes of produced water and liquid hydrocarbon spills (1000s of m³)



One pipeline leak resulted in about 1200 m³ of sweet light crude oil being released in a remote area south of Slave Lake. The environmental impact has been contained, and an EUB investigation concluded that public safety was not at risk during the incident. The EUB has directed the pipeline operator to take a number of measures to increase public safety and environmental protection.

In 2007, field staff will continue to work with industry to improve operating practices through increased staff training, equipment monitoring, and reviewing of corrosion mitigation programs.

6.6.1.3 Spill Response Training and Prevention

Spill response training exercises ensure that industry personnel are adequately trained to respond effectively to spills, thereby minimizing the impacts. There are 17 oil spill cooperatives throughout the province, one of which overlaps into Saskatchewan.

Field staff participate in oil spill cooperative training exercises and provide industry personnel with information on release statistics, reporting requirements, and regulation changes. In addition, the EUB works with the Western Canadian Spill Service, Enform, and industry to improve spill response and preparedness prevention programs. Spill response training improves industry response capabilities and reduces the environmental impacts when a spill occurs.

The EUB will concentrate on proactive spill prevention measures at the oil spill cooperative meetings and exercises in 2007.

6.6.2 Mobile Ambient Air Quality Monitoring

6.6.2.1 Monitoring Equipment

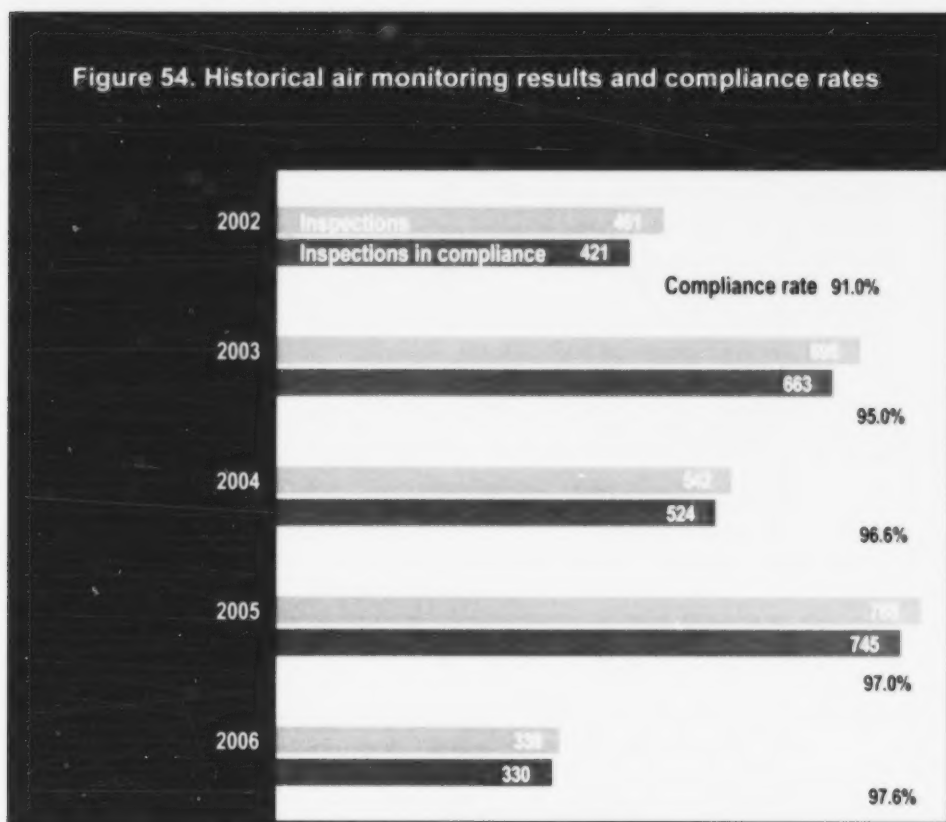
The EUB has two mobile ambient air monitoring units (AMUs). These units are equipped with analyzers capable of reading and recording H₂S and SO₂ emissions in the parts per billion range. In addition to the analyzers, the AMUs are capable of measuring and recording wind speed and wind direction.

6.6.2.2 Routine and Complaint Response Monitoring

The AMUs assist inspection staff in identifying facilities that emit H₂S and SO₂. In 2006, these units conducted 338 inspections, resulting in a 97.6 per cent compliance rate. In addition, the units responded to 8 emergencies to monitor air quality.

The EUB is committed to utilizing air quality monitoring technologies and equipment that are considered in the context of best available current technologies (BACT). In 2006, the EUB spent a significant amount of effort upgrading its two AMUs. Accordingly the number of inspections conducted using the AMUs in 2006 was reduced from the previous year.

Figure 54 shows historical air monitoring results and industry's compliance record.



6.6.3 Waste Management Initiatives

6.6.3.1 Waste Management Facilities

There are 82 operating oilfield waste management facilities approved by the EUB. Waste management facilities, as described in *Directive 058: Oilfield Waste Management Requirements for the Upstream Petroleum Industry*, include

- waste storage facilities,
- waste transfer stations,
- waste processing facilities,
- surface facilities associated with waste disposal wells,
- waste disposal wells (classes 1a and 1b),
- caverns,
- landfills,
- biodegradation facilities, and
- thermal treatment facilities.

In 2006, field staff conducted 68 waste management inspections, of which 42 waste management programs were found to be in compliance with EUB regulations, 25 licensees were issued Low Risk noncompliance enforcement, and one was issued High Risk noncompliance enforcement (see Figure 55). Staining/spillage and expired meter calibrations were the most common deficiencies identified. All facilities were brought into compliance. This compares to 66 waste management inspections conducted in 2005. The EUB will continue to focus on waste management inspections in 2007.

6.6.3.2 Drilling Waste Management

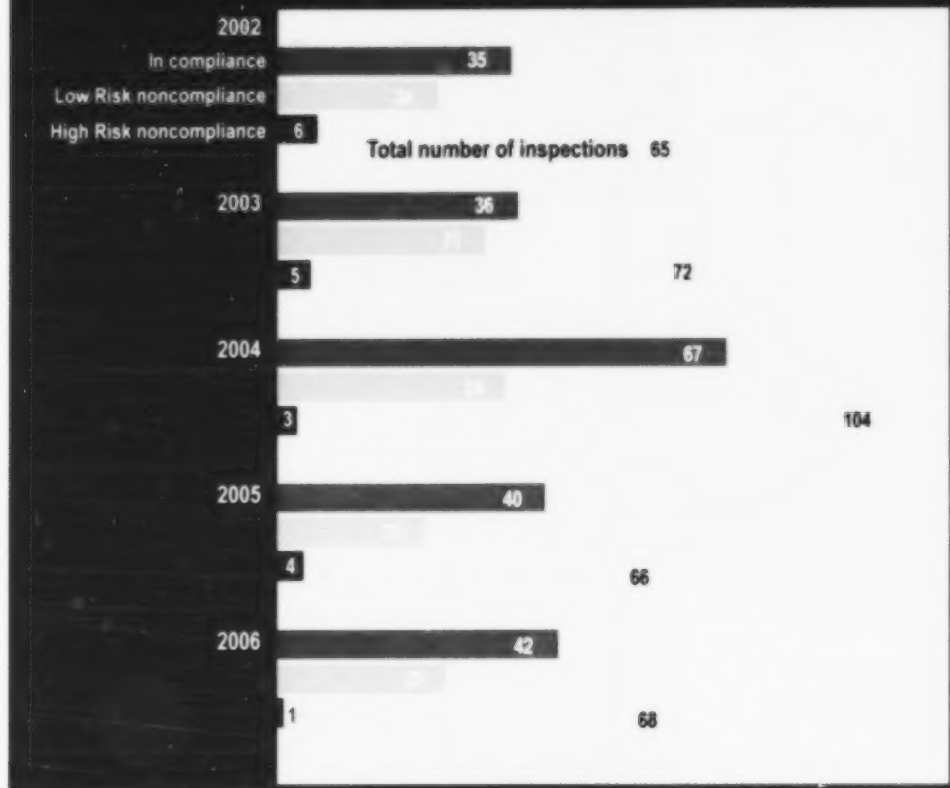
Drilling waste disposal methods are outlined in *Directive 050: Drilling Waste Management* as being either routine or nonroutine:

- routine—any disposal that does not require preapproval (e.g., mix-bury-cover, landspray, landspray while drilling, and pump-off)
- nonroutine—any disposal that requires preapproval (e.g., land treatment, biodegradation treatments, and alternative disposals)

In 2006, 200 drilling waste inspections were conducted, including 1 nonroutine. Of those, 173 were found to be in compliance with EUB requirements, 10 were found to be Low Risk noncompliant, and 17 were found to be High Risk noncompliant. This compares to 2005, when 177 drilling waste inspections were conducted, including 11 nonroutine, and the inspection found 146 compliant with EUB requirements, 13 Low Risk noncompliant drilling waste programs, and 18 High Risk noncompliant programs.

The most common Low Risk noncompliance items identified in 2006 were

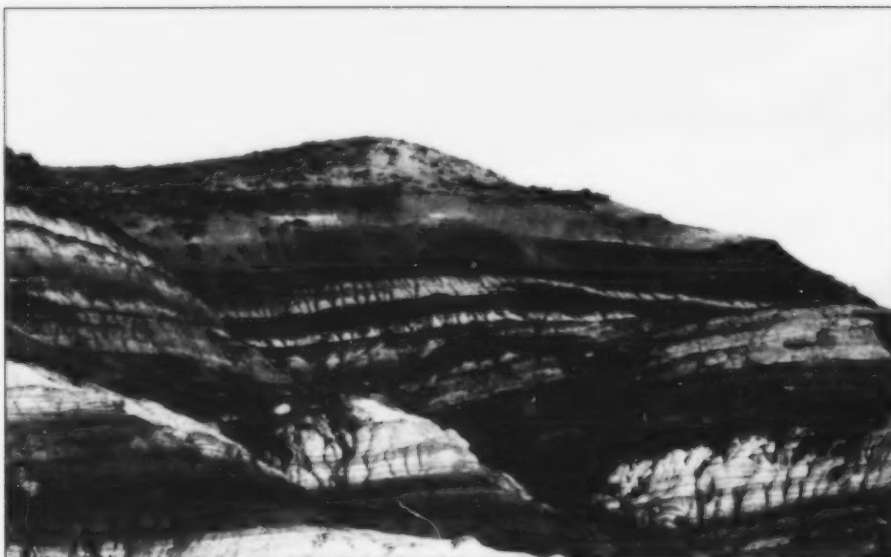
Figure 55. Waste management facility inspections and results



- housekeeping/fencing,
- signage requirements, and
- notification requirements.

The most common High Risk noncompliance items identified in 2006 were

- landspraying closer than allowable limits to surface water,
- inadequate landspraying method, and
- landspray area not approved by landowner.



7.1 Economics Group

The Economics Group is responsible for contributing to the EUB planning process by providing information and insight into emerging trends and issues that may have future impact on the EUB and its operations. Its sole compliance and enforcement function relates to monitoring the flows of natural gas and ethane; it ensures that holders of gas removal permits, issued by the Resources Applications Group, comply with the terms and conditions of the permits.

7.1.1 Gas Removal Permits

The EUB is mandated to protect the public interest of Albertans and must therefore ensure that the supply of natural gas is always adequate to prevent loss of life and property. The EUB protects the public interest by monitoring supply and proactively ensuring that a 15-year supply of natural gas is preserved for Albertans.

The EUB also regulates removal of the ethane resource from Alberta. It ensures that Albertans receive a fair share of the valuable constituent of natural gas and protects the Alberta petrochemical industry by ensuring access to feedstock.

The *Gas Resources Preservation Act (GRPA)* and *Regulation* are the legislative instruments that govern acceptable business practices for the removal of natural gas and ethane (described collectively as "gas") for sale to markets outside of Alberta. In concert with the policies described in Energy Resources Conservation Board (ERCB) *Report 87-A: Gas Supply Protection for Alberta—Policies and Procedures*, the *GRPA* explains the requirements relating to EUB gas removal permits and consequences of noncompliance. Terms and conditions specified in a removal permit and the legislated requirement to report monthly Alberta gas removals enable the EUB to effectively regulate the resource.

On February 1, 1999, the Gas Removal Data (GRD) system, an electronic means for collecting monthly gas removal information using a Web-based form, was launched by the Economics Group. Currently, an upgraded version of the GRD system collects the data, generates tables as input to detailed analysis of gas distribution, and conducts a self-audit of reporting compliance.

Detailed Compliance Data for 2006

Note that data for 2006 include December 2005 and exclude December 2006. Also, the number of 2006 total audits is the sum of the number of active permits during each month.

Table 75. Gas Removal Permits, 2006

	2006
Total audits	2 444
Low Risk	
Low Risk Notice 1	99
Low Risk Notice 2	0
Low Risk Enforcement	6
Low Risk Enforcement with Orders issued	0
Proactive compliance rate for Low Risk	96%

Table 76. Gas Removal Permits Request for Review Statistics, 2006

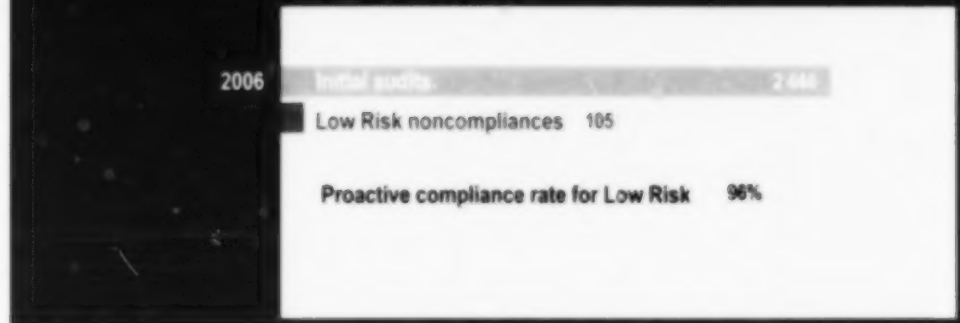
	2006
Enforcement actions	105
Request for reviews received	1
Request for review rate	1%
Request for reviews granted	1
Request for review denial rate	0%

Table 77. Gas Removal Permits Compliance Results, 2006

	2006
Initial audits	2 444
% satisfactory	96
% unsatisfactory (Low Risk)	4

- Late reporting is the most common GRD reporting noncompliance error. Unlike many other regulatory requirements to report data, there are no financial penalties imposed for missing, late, or inaccurate reporting of gas removal permit data. Therefore, it is reasonable to assume that GRD reporting is often assigned a relatively lower priority.

Figure 56. Gas removal permit audit results



- The GRD System Administrator serves to coach and advise permit holders in several ways by
 - maintaining the on-line GRD System User Guide (including Frequently Asked Questions),
 - attaching the guide to all correspondence sent to GRD system users,
 - suggesting GRD reporting process improvements during all user support phone calls, and
 - as time permits, calling permit holders to check on permits that are nearing the expiry date or that show a total reported volume close to the total authorized permit volume.
- To date, there has never been an incident of deliberate refusal to provide GRD data. Without exception, a first notice of Low Risk noncompliance for a missing or late noncompliance error results in immediate compliance. For invalid permit noncompliance errors, enforcement is immediate and the error is corrected within 60 days of the date of the enforcement letter.

There are three possible noncompliance errors that users of the GRD system might make when reporting gas removal permit data.

- **Missing/Late:** GRD data submitted after midnight of the reporting deadline date for a particular data month is recorded as a late submission. If the data have not been received at the time of the monthly audit, the data are recorded as missing and must be submitted as soon as possible.
- **Invalid Permit – Term:** An error report is generated by the GRD system when the permit holder uses the permit to remove gas from Alberta after the permit expiry date. Removing a volume of gas under the authority of a permit that has expired is a violation of the terms and conditions of the permit.
- **Invalid Permit – Volume:** An error report is generated by the GRD system when the total reported volume exceeds the total authorized permit volume. The total authorized permit volume is clearly stated in the original Alberta gas removal permit

document. Removing a volume of gas that exceeds the total authorized permit volume is a violation of the terms and conditions of the permit.

7.2 Geology and Reserves Group

7.2.1 Reserves and Allowables Section

Allowables, or maximum rate limitations (MRLs), are rate controls applied primarily to oil entities in accordance with a Board Order. Allowables are assigned to new pools where conservation is or could potentially be an issue to help ensure that enhanced oil recovery feasibility and gas conservation are addressed before pools are significantly depleted. Allowables help to minimize gas cap depletion until decisions are made on concurrent production. They also serve to maintain intra-pool equity.

There was an increase in 2006 of the number of enforcement actions compared with previous years as a result of the EUB reinstating the MRL Order commencing January 2006 and operators not adjusting their production in accordance with the MRL Order. The EUB had temporarily suspended MRLs from September 1 to December 31, 2005, in response to Premier Ralph Klein's request for Alberta to increase the supply of oil on a temporary basis to help the United States during the crisis caused by Hurricane Katrina.

The enforcement policy regarding retirement of oil overproduction is based on *ID 99-02: Revised Policy on Administration of Oil MRL's and Overproduction*, *Directive 007-1: Allowables Handbook*, and *Directive 019*. Enforcement of retirement of oil overproduction is the responsibility of the Reserves and Allowables Section in the Geology and Reserves Group and the Enforcement and Surveillance Section in the Resources Applications Group.

Detailed Compliance Data for 2006

Table 78. Oil Overproduction, 2006

	2006
Audits of production entities capable of exceeding MRL	8 988
High Risk	
High Risk Action 1	58
High Risk Action 2	0
High Risk Action 3	0
High Risk Action 3 with Orders issued	0
Proactive compliance rate for High Risk	99.4%

Table 79. Oil Overproduction Request for Review Statistics, 2004 - 2006

	2004	*2005	2006
Enforcement actions	63	51	58
Request for reviews received	4	1	1
Request for review rate	6%	2%	2%
Request for reviews granted	2	1	0
Request for review denial rate	50%	0%	100%

Table 80. Oil Overproduction Request for Waiver, 2004 - 2006

	2004	2005*	2006
Enforcement actions	63	51	58
Request received	13	5	3
Request rate	21%	10%	5%
Request granted	3	0	0
Request denial rate	77%	100%	100%

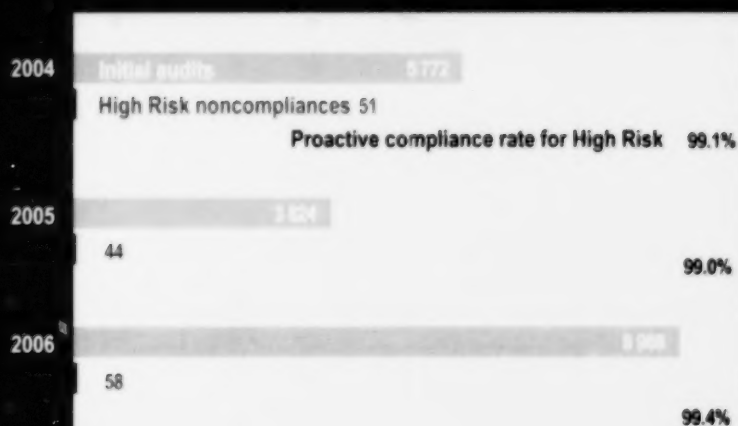
*2005 data are for a partial year due to the suspension of MRLs.

Table 81. Oil Overproduction Compliance Results, 2004 - 2006

	2004	2005*	2006
Audits of production entities capable of exceeding MRL	5 772	3 824	8 988
% satisfactory	99.1	99	99.4
% unsatisfactory (High Risk)	0.9	1	0.6

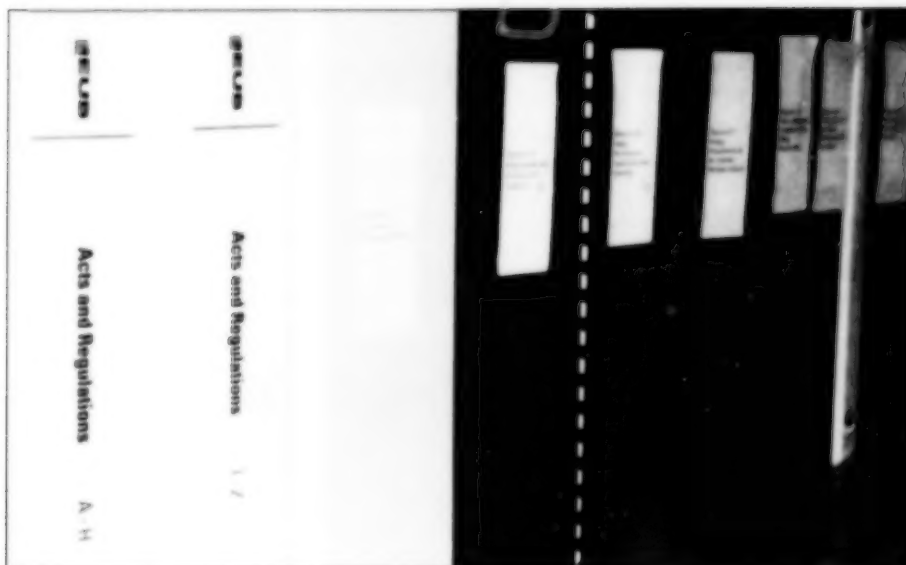
*2005 data are for a partial year due to the suspension of MRLs.

Figure 57. Oil overproduction audit results



- The number of audits of production entities capable of exceeding MRLs is estimated based on a review of allowable records. Due to the suspension of MRLs from September to December 2005 (inclusive), the EUB was able to get a more accurate estimate for 2006, which resulted in a significant increase compared to previous years.
- High Risk Enforcement Action 1 occurs when a production entity has a cumulative overproduction status exceeding 10 per cent of its adjusted (penalized) monthly MRL and the entity fails to retire all overproduction volumes, including penalties, by the end of the third following month.

8 Appeals to the Enforcement Advisor



The Enforcement Advisor reviews second-level enforcement appeals for all audit/inspection categories of the EUB.

Detailed Compliance Data for 2003 – 2006

Table 82. Appeals to the Enforcement Advisor, 2003 - 2006

	2003	2004	2005	2006
Appeals received	10*	5	6	10**
Appeals granted	2	3	2	5
Appeals denied	7	2	4	4
Appeal denial rate	78%	40%	67%	44%

* One of these appeals was withdrawn.

** One of these appeals was assigned to a single Board member.

